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Virginia MEDICAL MONTHLY

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April, 1948

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*Cushny, A. R. : Pharmacology and Therapeutics, 13th Ed., Lea & Febiger, Philadelphia, 1947, p. 183.

Virginia Medical Monthly

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GUEST EDITORIAL

The Nursing Problem

IT is generally recognized that the increasing shortage of trained nurses has reached alarming proportions and that it seriously handicaps medical service. Though more new student nurses were enrolled in 1947 than ever before in peace time, demand for nursing service has grown at so rapid a rate that it still far exceeds available supply. This disturbing fact has been widely discussed in both medical and lay publications, and though various causes and remedies have been proposed, the problem remains as yet unsolved.

Outstanding among the causes assigned for the deficit in nursing is the system of training that has been evolved during the past few decades and is now in operation. It is asserted that cultural and scientific education has been stressed to the point that many candidates otherwise qualified have been denied admission to training schools and that those who succeed in graduating are not interested in the care of sick patients. With the apparent idea of becoming a learned profession, nursing has at the same time adopted closed shop methods and has developed legislative and other means of enforcing its arbitrary standards upon hospitals and physicians. In short, it is said that nurses are being educated away from their proper sphere, and no improvement may be expected until the present system is radically revised.

Others hold that economic factors are chiefly responsible. They believe that nursing offers too small a reward to those who practice it, and is too costly to those who need it. The pay of a nurse is compared to that of various other vocations—bricklayers, for example—with the conclusion that a nurse's pay is insufficient and that this, together with lack of adequate provision for social security, deters young women from entering the profession. They point to the scarcity of workers in other fields, the general preoccupation with wages and hours, widespread unrest and dissatisfaction throughout the world, and suggest that the situation in nursing differs little from that in many other departments of human endeavor.

Though full agreement is lacking as to its cause or causes, efforts are under way toward solving the problem. Sponsored by the American Hospital Association, a nation wide campaign is being carried on to induce young women to enter the nursing profession. This campaign has the endorsement of numerous medical, health and welfare organizations, and while its announced goal of 50,000 new student nurses in 1948 may not be realized, its usefulness cannot be overlooked and it deserves the hearty cooperation and support of all who are interested in the care of the sick.

The recent development of plans for training a new group of so-called practical nurses is regarded as a possible solution. This movement is significant in that it recognizes the fact that nursing can be competently done by those who have had a brief period of practical training. Most physicians believe that the greater part of bedside nursing can be carried on by nurses so trained, but the idea has been received with no great enthusiasm by nursing associations who reject the proposal that training of practical and professional nurses be coordinated. Physicians generally

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and many nurses believe that such coordination is practical, and no better plan has been suggested than that outlined in an editorial in the VIRGINIA MEDICAL MONTHLY for July, 1946. This plan proposes that all schools of nursing adopt a two year course with substantial curtailment of educational requirements. Graduates would then be adequately prepared for bedside nursing, while for those with superior preliminary training and ability, post-graduate work in special fields would be available.

Most promising is the renewed interest of the medical profession in nursing. Authorized by the House of Delegates of the American Medical Association, a committee is now actively engaged in studying the whole problem of nursing care. Its personnel gives assurance of vigorous and open-minded consideration of the questions involved, and it may be assumed that whatever recommendations are made will be definitely constructive. This action may be interpreted as the beginning of a concerted and continuing effort on the part of doctors to secure for their patients the kind of nursing care that is needed. It is believed that this committee can and will succeed in reconciling conflicting views and interests to the degree that nurses, doctors and hospitals may unite in a program to which all can give wholehearted support.

Despite current criticisms, nursing as a vocation is basically sound and its future is assured. It offers useful and interesting employment with variety of opportunity and rewards commensurate with ability and efficiency. It is an integral part of medical care. Doctors, medical societies and women's auxiliaries are urged to make this clear to young women who are about to choose a vocation, and to point out to them the advantages of nursing as a career.

J. MORRISON HUTCHESON, M.D.

EDITOR'S NOTE: Dr. Hutcheson is a member of the House of Delegates of the American Medical Association, and is conversant with the policies of that organization.

Floral Eponym (61)

MAGNOLIA HALLEANA; LONICERA HALLIANA

HALL, GEORGE R.

HALL graduated at Harvard Medical School in 1846. He practiced medicine in Shanghai for many years and then devoted himself to botanical collecting, especially in Japan.

M. Halleana or M. Stellata is the beautiful star magnolia, one of the first to bloom in the spring.

L. Halliana or L. japonica is one of the climbing honeysuckles.

SOME MISCELLANEOUS OBSERVATIONS ON MANAGEMENT OF THE ALLERGIC PATIENT*

EDWARD LEE ALEXANDER, M.D.,
Newport News, Virginia.

This discussion makes no attempt to present anything original or to engage in any of the controversies regarding the allergic or hypersensitivity problem. Its sole purpose is to re-emphasize some of the phases of therapeutic management which have, through the years, appeared important. Furthermore, it appears that some of the important phases of management have not been adequately emphasized, either in the textbooks or in the current literature. It is obvious that certain environmental influences in which man finds himself have not been to his advantage and have eventuated into certain problems for him, important among which are those diseases now spoken of in the category of allergy. The ever-increasing complexity of modern life subjects the body cells to environmental conditions which are relatively new to it—so new at times that it is unable to make adequate adjustment and cellular irritation and/or injury results.

Urbach[1] wrote in 1946:

"The current economic and social upheavals and the general unrest of the population constitute one of the outstanding predisposing factors in the pathogenesis of hypersensitivity. The city dweller's diet, rich in protein, salt and spices on the one hand and poor in calcium vitamins and roughage on the other, tends to support and maintain allergization. * * * There has been an alarming increase in the incidence of allergic disease * * *. Why are they found chiefly in the large cities?"

Allergy, or hypersensitivity is a disorder of civilized man and under suitable conditions all people may become hypersensitive. The type of reaction on the part of the body cells will depend upon the kind of noxious agent to which they are exposed, the length of exposure, the quantity and quality of the agent and to the health of the cells themselves. One of the major cellular responses is the production of anti-substance (anti-bodies) which is destined to be used for defense against further attacks, very much like a nation protects itself against attack by the enemy. However, as is frequently the case, this defense mechanism is inadequate and the cell loses its life in the struggle. Between adequate defense and protection on the one hand and death on the other, there exist intermediary grades of response and result. Between these two extremes are found diverse grades of tissue reactivity.

Let us look at some of the changes which have occurred. According to Sears[2], the ratio of civilized man to the age of man upon the earth is computed to be 1 to 500. That is, for every year he has attempted to adjust himself to living with other people in communities, he has been in existence upon the earth 500 years. In the beginning, man lived in a tropical climate. He moved north only when he found ways to secure the fur of animals to cover his body and in comparatively recent years he has gathered about him walls, smoke and fog. In the skin of man there is found a substance known as 7-dehydrocholesterol, which upon exposure to sunlight, yields vitamin-D. This substance has to do with the mobilization and utilization of calcium and phosphorus in the body. Now, since coming out of the sunshine, substitutions have necessarily had to be furnished, with what results are unknown at this time. Certainly, this change from sunshine to no sunshine is relatively recent. Judging from the frequently encountered disorders of metabolism of these two substances, one wonders if the change has been successful for him.

In Jonathan Swift's "Tale of a Tub", bread is referred to as the staff of life. At the time that was written, it may be supposed that bread was the staff of life because it was dark bread and contained all of the ingredients nature meant for it to contain, important among which was thiamin chloride. However, much less than a century ago, the roller mill was invented, first by the Hungarians and finally, about 70 years ago, it came to America. This device enabled the bread business to be more commercialized by taking the germ out of the grain and making the flour sterile so that it could be kept on the groceryman's shelf. Despite decrease in quality, the quantity of consumption increased from year to year until we now consume over one billion and one half dollars worth of

*Presented before the Southeastern Allergy Association, January 1947.

bakery products annually. Added to the roller milling of our grain, there appeared another important item in this changing diet of man. He began to increase his sugar consumption. Mendell[3], in 1927, stated:

"During the early part of the last century, sugar was used primarily as a condiment. The consumption in 1823, for example, has been estimated at enough to give each person 8.8 pounds a year, which represents about 44 calories per day. Last year, somewhat more than a century later, the annual per capita consumption of sugar amounted to 108 pounds, or more than 500 calories per day, representing on an average of nearly 1/5 of our energy intake—1000 calories being sold at a retail price of less than three cents."

Therefore, not only has there been a diminished intake of thiamin chloride, for example, but there has been an ever-increasing demand, which has undoubtedly eventuated into widespread thiamin chloride deficiency, this being concerned with carbohydrate metabolism. If one studies the soda fountain and cocktail bar habits of the American people in recent years, it could be very readily assumed that should Dr. Mendell make another survey now, he would find the consumption of sugar, regardless of the shortage, to be much increased.

In the 1939 Year Book of Agriculture[4], Henry Wallace, then Secretary of Agriculture, stated:

"Fifty per cent of the people of the United States do not get enough in the way of dairy products, fruits and vegetables to enable them to enjoy full vigor and health. * * * all too many families in the United States have poor diets. Some have fair or passable diets and only relatively few have really good diets."

Of the number of rejectees in World War II, the figure being approximately one rejected for every three accepted, between 30 and 40 per cent of this group had physical defects of alleged nutritional origin. The writer has been interested in the manner in which people eat for a great number of years and so has made observations among all types of people from the "greasy spoon" to hotels of celebrated reputation. All up the line, the observation has been unanimous that American people haven't much idea of what is good for them in the way of nourishing their bodies. A few weeks ago a college student who was graduated from a very fine private boy's school, had spent two years in the Navy and is now in his third year at a well known university, was asked how much instruction he had had with regard to what's good for him to eat. He replied that he had received none.

The writer had occasion, not only to observe the eating habits of the enlisted personnel, nurses and patients in the hospitals during World War II, but also those of medical colleagues during four and a half years of Naval service. The most astounding observation made was the diet of the average Medical Officer. There, of course, was no measured sampling of rations, but in the vast majority of instances, breakfast consisted of white bread or toast, a small piece of butter, fruit juice, jam and coffee. The average luncheon consisted frequently of a white bread sandwich, ice cream and coffee—milk sometimes. The dinner was considered to be fair. Urban man now takes a light breakfast, largely of carbohydrates, a sandwich lunch and the major portion of his calories are taken in the evening when the day's work is done. In other words, the engine is refueled after the run.

In a recent book, previously referred to, "Cities are Abnormal", figures are tabulated which show the shift in population from country to city:

	1940	1900	1850	1790
Urban	56.5	39.7	15.3	5.1
Country	43.5	60.3	84.7	94.9

In a very few years, therefore, man has come from a rural existence where there was sunshine, fresh air and space, to the crowded conditions of the industrial city of today which is filled with smoke, no sunshine, irregular food, noise and insecurity.

For most of the five million years in which man has alleged to have started his existence on this terrestrial globe, he, of necessity, retired with darkness and arose at dawn. Only a very few years ago did he find ways of artificially lighting his way, so that now, his average time for going to bed is becoming later and later. In the little industrial city with which the writer is familiar, the average time for going to bed of a group of allergic patients was 11:15 P.M. The average time for arising was 5:45 A.M., representing a total of six and one-half hours of sleep assuming that every minute was spent in profound slumber. This is not only insufficient sleep for the sick or allergic patient, but is insufficient for the allegedly well individual as well. So, our little man has become a night-lifer.

He has also become chronically addicted to nico-

tine. It seems as though almost everyone smokes and when asked about the amount of tobacco consumed, the usual reply is "a pack a day", oftentimes more. Tobacco is a known sympathetic nervous system stimulant and a cigarette an hour will maintain the blood vessels in a state of spasm, not to mention the chronically irritating effects on the bronchial mucosa. In the patient who has nasal or respiratory allergy, tobacco is definitely contraindicated.

There has arisen among our people a state of chronic constipation, due perhaps in part, to a lack of bulk in our diet and, in part, to a tendency to arise at the last minute in the morning with insufficient time to attend to this very important function. It has been amazing to see how many patients will give the history of irregularity of bowel function but if they are asked the question, "Are you constipated?", the answer will frequently be "No." If this be followed by the question, "What time do your bowels move each day?", it will be found that so frequently the time is irregular, and if this question is followed up with appropriate rectal examination, one will find hard, lumpy masses in the rectum, which means that the individual's elimination is inadequate. Then you will be amazed at how frequently these people take mineral oil. This substance was introduced as a laxative between 1905 and 1910. It was in 1927 that Dutcher[5] et al, and Burrows and Farr[6], showed that liquid petrolatum interfered with the absorption of carotene. They made the observation that each ounce of mineral oil at body temperature is able to dissolve 140,000 units of carotene, and at room temperature, 120,000 International units. The average American diet has been found to contain only 10,000 units of vitamin-A a day and two-thirds of this is contributed by carotene of plant foods, according to the above writers. Also, it has been found that vitamin-D, vitamin-K and vitamin-E are also fat soluble and will be carried through the gastrointestinal tract when dissolved in mineral oil. This may be a factor in vitamin-A deficiency with the squamous cell hyperplasia so beautifully exhibited at the recent American Academy of Allergy meeting in New York, by Dr. Milton G. Bohrod.

The ever increasing chemical substances to which man is exposed is introducing new problems for him. Vaughan[7] wrote in 1936, "All Persons are Potentially Allergic". He summarized the conclusions of Spain, et al, as follows:

"A given percentage of persons will give positive reactions to patch tests with 1/1,000 dilutions of ivy extract. If those who now fail to react are tested with 1/100 dilutions, the same percentage will be found to react. If those who fail to react to 1/100 are tested with 1/10, the same percentage will be found to react."

The same condition has been found to be true of exposure to nickel. Therefore, it is evident that body cells exposed long enough to strong enough concentrations of an agent, respond by the reaction of hypersensitivity in almost every case.

Then there is the ever increasing imbibition of alcohol. In the year 1946, more than $6,000,000,000 was spent on alcohol. It has been shown by various workers that the allergic state may be aggravated or symptoms initiated under the influence of alcohol. For a great many years the battle was waged as to whether alcohol was the cause of cirrhosis of the liver. While it was common knowledge that the disease was encountered most frequently in the alcoholic, it also occurred in those who did not use alcohol. It is now generally believed that the fibrotic process is initiated in the absence of certain essential nutrient materials. This would explain the occurence of the disease not only in the alcoholic but in the non-alcoholic as well.

Some have come to regard periarteritis nodosa, which is actually a panarteritis, as a manifestation of hypersensitivity. Rich[8], in 1942, described five cases of this disease in patients who had serum sickness and who had received sulfonamides. The lesions on autopsy showed the typical pathological lesions. In a subsequent paper, Rich[9], reported on the experimental production of periarteritis nodosa by the injection of horse serum in animals. Some of his animals developed glomerulonephritis. He concluded that some cases of glomerulonephritis in man may be the result of hypersensitivity. Other papers by Rich, et at[10], have set forth some evidence that lesions in the hearts of hypersensitive animals bear certain resemblances to those of rheumatic carditis.

Drs. Hill and Damiani[11], reported a case of periarteritis nodosa following one exposure to DDT.

In August 1945, Palmer[12], in discussing migraine headache, wrote:

"We have concluded that there exists in the migraine patient a cyclic total body or tissue toxemia of metabolic origin or the absence or deficiency of an enzyme essential to normal tissue metabolism. In a series of 500 cases treated with thiamin chloride, nicotinic acid and syrup of B complex, sixty per cent have had complete relief. Another twenty per cent were definitely relieved."

We* have treated a series of 50 cases by the Palmer method and have found that fifty per cent of these patients were totally relieved under observation. If what Dr. Palmer says is true, then it must be assumed that migraine, in part, might be on the basis of a deficiency disease.

Dr. Peters[13], reported on the mechanism of headache on the basis of swelling nerve tissue, associated with vitamin B deficiency.

Tuberculosis is a disease now generally recognized to have at least an allergic equivalent. When the diagnosis is made, the patient is immediately sent to a sanatorium for treatment. He is put to bed in a lighted room with fresh air, adequate food, good psychological surroundings and appropriate instructions for body hygiene destined to mobilize all possible resources of body defense to aid in the battle of the body versus tubercle bacilli. There is, up to now, no known specific immunization or desensitization procedure whereby the body may be aided in its defense. So, dependence must be placed on the indirect plan of attack. As a rule, the results are successful. Finally, the patient is returned to his home, not with a bottle of extract and a sheet of instructions, but a sheet which tells him that his disease is not cured, but only arrested, and goes into great detail as to how he should live in some fashion as he has lived at the sanatorium.

Bronchial asthma is a serious disease and has some counterpart with relation to tuberculosis, but up to now, society is not prepared to accept it as such. So, the individual with his intrinsic asthma, for example, wheezes on, eventuating into emphysema and/or bronchiectasis.

The following cases will serve to illustrate some of the points discussed in the foregoing:

CASE 1. Mrs. C. was first seen in February of 1946. She was a white female, aged 29, married and without children. At the age of 14 she had pneumonia. The pneumonia occurred in the winter and the following autumn she had severe hay fever, following which she developed perennial asthma. There were years of relative freedom from symptoms. At age 22 she was married and she says that her asthma became definitely worse following marriage. She described her married life as being very normal, denying any incompatabilities whatsoever, but said that her husband was a very nervous man. The physical examination showed her weight to be 100 lbs. (ideal 142 lbs.) and her height 5'8". Except for asthma and her emaciated appearance, the physical examination revealed nothing very remarkable. Pelvic examination was not made. The laboratory studies were all within normal limits. On appropriate allergic studies there were marked reactions to feathers, dust and ragweed. She was started on appropriate desensitization with some encouraging results in the beginning, but as the fall progressed, it became obvious that treatment was inadequate. Finally, the information came to hand that the patient had seven years of sexless marriage. This condition was appropriately remedied and married life proceeded in a normal fashion. For a month following correction of this abnormality, all seemed very well and then suddenly she came down with severe asthma and for several weeks was in status asthmaticus. After six weeks of hospitalization, she improved satisfactorily. Reference to her ration revealed that she ate four or five slices of white bread with each meal, little or no meat, very little milk and an occasional egg. In other words, she was living on an almost pure carbohydrate diet. In the meantime, appropriate desensitization to the above referred to allergens was being carried out in a cautious manner. With a readjustment of her food intake she began to gain weight, desensitization was stopped and for the first time in several years she has had six weeks of freedom from asthma. She is of the opinion that the change in her dietary habits was the procedure which started her on the road to recovery.

CASE 2. Master G., white, male, Protestant, American, age 12. At age 7 began to have classical migraine which would always occur at 11 A.M. on Tuesdays, characterized by bilateral headache followed by severe nausea and vomiting with recovery by Thursday so that he could return to school. His mother gave the history that he ate very little breakfast, had hot dogs and coca-cola for lunch and the usual supper. He never drank milk—disliked it. His lips were always red and

Dr. Edward B. Newborne, Associate.

chapped and about a year ago he began to have sneezing spells. Otherwise the history was irrelevant. Physical examination showed a malnourished boy with low grade allergic rhinitis; otherwise, nothing remarkable. The laboratory studies were essentially unrevealing except for 6 per cent eosinophilia. The scratch tests revealed 4+ reaction to house dust. Very cautious dust desensitization was started and he was placed on an appropriate vitamin mixture and an adequate ration. From the date he was first seen, on April 8th, 1946, until the last time on January 3rd, 1947, he had not had one single headache. His allergic rhinitis continued, however, until elixir benadryl was started. Dust desensitization has been cautiously continued.

CASE 3. Mrs. J. was first seen on February 1st, 1946. She began to have urticaria in 1945. At the time she was first seen she had severe and widespread urticaria. The history was that she was "very nervous", that she came from a broken home (her mother and father had been divorced) and that she had been divorced from her first husband and had been married to her present husband for five years. She gave the additional history that she consumed 10 cups of coffee daily, most of which was in the evening, a package of cigarettes per day, retired at 12 midnight and arose at 6:30 A.M. In addition to her housework she had the responsibility of her home, including the care of her child of the first marriage, and was employed as a stenographer. She was alleged to have had hypothyroidism and was taking 4 grains of thyroid daily. She ate no breakfast in the morning, a light lunch, and the usual American dinner. Physical examination showed an intelligent, cooperative, anxious individual with widespread generalized urticaria. The laboratory studies were negative. After the initial flare had subsided, it was found that she was 4+ sensitive to house dust and 2+ to feathers. These findings were ignored. She was placed on a commonsense regimen of living and eating with prompt subsidence of symptoms. She remained well for three months and then, following the taking of some aspirin, had recurrence which promptly subsided.

CASE 4. Mr. V first came into the office in December, 1946, with the history of severe urticaria beginning on the 13th of November, 1946, and which had continued unremitting and severe until the day he was seen at the office. The city in which he lived had a Fiftieth Anniversary celebration in October and he was detailed, as chairman of a committee, to prepare a float representing the Greek inhabitants of the city. He, being of a conscientious trend of mind, resolved, upon appointment to this commission, to have the best float in the parade. To that end, he started working on it in August and, as he described it, worked night and day, getting only 3 to 4 hours of sleep each night. He won the float prize in October of 1946 but he didn't get back to his normal habits of sleep and found that he had insomnia. Being a restaurant proprietor, he ate irregularly. His breakfast consisted of two eggs and three slices of toast anywhere from two to three o'clock in the afternoon. Rarely did he have lunch and would eat his supper late at night. The neuro-psychiatric history was that he appeared to be of high-strung, perfectionist, puritanical, soul-saving temperament. He did not use tobacco or alcohol. He had never married. Physical examination was entirely negative except for urticaria. Laboratory studies, including the allergic series, were essentially negative. He was directed toward a more sane manner of living. The results have been satisfactory up to this date.

DISCUSSION

Within the last few years, therefore, man has transferred from the rural to urban regions where he has encountered an entirely new way of life which frequently has not been beneficent to his well being. If, therefore, we are to succeed in the management of some of these diseases, which he has acquired in his new environment, it would appear that some compromise between what he was accustomed to and that with which he is now faced, must be accomplished. One way, perhaps, would be for him to replant one foot on the soil from whence he came. Some industries, chief among which is the Ford Motor Company, have already taken some action in this regard. The employees of that vast empire are urged to acquire a parcel of land which is removed from the industrial center, where they are encouraged to acquire some knowledge concerning horticulture so that they may, in part at least, be self-sustaining and relatively secure. In order to accomplish this, our educational system will have to be revised and the whole of human society will have to assume the responsibility for this colossal, though not impossible, undertaking. The retraining must concern itself with

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methods of how to eat, sleep, smoke and drink and that a healthy brain must be carried around by a healthy body.

The present day management of allergic diseases has been concerned entirely too much with the categorical procedure of skin tests, elimination and injections, and too little with the natural history of the patient's manner of living which initiated the process.

CONCLUSIONS

1. The change from rural to urban living has been too sudden for the tissues of man adequately to adjust. Tissue responses resulting from these changes have been discussed.
2. Reason was meant to protect him where instinct formerly did, but the former has misdirected him.
3. The whole of society must participate in man's rehabilitation if the diseases acquired in his civilization are to be controlled.
4. Some suggestions have been presented which may be of aid.

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2901 West Avenue

Skin Complaints and Mental Disease.

Certain skin complaints often are among the first signs of an underlying mental disease, according to two Chicago doctors, Theodore Cornbleet, M. D., and Meyer Brown, M.D., from the Department of Dermatology of the University of Illinois College of Medicine and the Department of Nervous and Mental Diseases of Northwestern University Medical School.

Writing in the January 17 issue of *The Journal of the American Medical Association,* the writers observe that disturbed sensations of the skin which cannot be traced to any rational source should always be suspected. Some of the most common of these are intense itching which develops suddenly, a feeling of numbness, tingling, burning, drawing, heat or cold, a sensation of insects crawling or of droplets falling on the skin.

An actual skin disorder may sometimes be accounted for by excessive washing or cleansing of the skin which springs from a delusional idea, the doctors point out. Unreasonable concern over the appearance of some simple condition such as a few additional facial hairs or moles or increased dryness or oiliness of the skin, as well as complete indifference to serious skin disease, also may indicate that a psychiatrist's services are needed. Excessive sweating, feelings of warmth, blanching or flushing or blushing may or may not be part of a set of psychiatric symptoms. More obvious are bizarre delusions involving the skin and self-induced injuries.

MEDICAL PUBLIC RELATIONS*

JOHN T. T. HUNDLEY, M.D.,
Lynchburg, Virginia.

We repeatedly meet, as groups of doctors, to discuss our problems. Many of our ideas are good, but we tend to forget that the medical profession composes but a small proportion of the total population. It is true that our influence is disproportionate to our numbers, but our influence is not great enough to long allow us to run counter to public opinion, nor can we stem an overwhelming tide of adverse criticism.

We need to know what the public is thinking. Not the professional agitators, but the common garden run who compose our practices. Perhaps the public is wrong. That makes no difference if they are not convinced. Unfavorable public opinion will engulf us unless we, first, put our house in order, and second, convince the public that their best interests lie in the continuation of the present system of the private practice of medicine.

In preparation for this talk I attempted to sample public opinion. I selected a group of people who had reason to know of medical problems in the community. To prevent personal bias, I largely avoided those who were patients of mine. Both men and women are represented. There are industrialists, employers of labor, personnel managers of large corporations, editors and publishers, judges of the courts, prosecuting attorneys, welfare workers, public health nurses, women on the boards of the Red Cross, Junior League Clinics, Child Care Centers, ministers who frequently serve as personal counselors, a radio station executive, a C. I. O. educational director, legislators, and others. To them I addressed a request for opinion as follows, "The medical profession realizes that its public relations are at fault. Some of the responsible factors are known to us as members of the profession, but the lay public, on and with whom we practice, has a different approach. I am to participate in a conference on Medical Public Relations, in Richmond on December 20th. Would you list on the back of this sheet, the grievances of which you have knowledge, and points in which you feel the medical profession, both as individuals and as a group, fail in their efforts to maintain friendly public relations?

"After all it makes little difference what the medical profession feels, if the lay public feels otherwise. By getting a cross section of local opinion, valuable ideas should be obtained."

The response was nearly 100 per cent, and every reply showed thoughtful consideration of the subject. A few refused to commit themselves in writing but arranged conferences, where I let them do the talking, while I took notes.

The public is concerned with what they feel is the imminent approach to socialized medicine. They do not want the socialization of medicine, but they believe it is coming, and they will not fight the onset. Neither will they help the medical profession to fight, unless and until they see that the medical profession realizes and is making a sincere effort to correct its own faults and clean its own house.

The following are abstracts of the statements made to me. I have made no changes except a few minor ones in the interest of brevity.

There is LACK OF PERSONAL INTEREST in the patient. A scientific attitude, which treats the disease but forgets the individual. Patients feel they are run through the mill mechanically, and the old, friendly, personal attitude between doctor and patient is lacking. There is the feeling that the doctor thinks he is the important factor, "when in reality I am". Doctors do not take time enough to give individual attention, or make careful examinations.

The COSTS OF MEDICAL CARE have mounted to the point that only the rich, or the charity patient, can afford good medical attention. The average individual cannot stand the costs of an operation, or of a lingering illness. The poor man cannot afford to get sick. Surgical fees are exorbitant. Bankruptcies are due to three major factors as items of expense, doctor's bills, hospital bills, and borrowing from loan sharks, and 80 per cent of the borrowing from the loan sharks is for the purpose of paying doctor and hospital bills.

There is OVERSPECIALIZATION which has unduly

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increased the costs, and at the same time rendered it more difficult for the average individual to get medical attention when needed. Excessive expense is involved in referring the patient from one specialist to another. More old-time general practitioners are need. There is too much office work and not enough doctors are willing to make home calls. Overspecialization, and refusal to care for minor conditions in another specialist's field, increases cost by requiring more than one fee. The charge by the referring physician, merely for referring the patient to another specialist, is unjustified. Overspecialization, carried to the foolish extremes often encountered, is compared to the "featherbedding", a vicious, modern labor union practice.

The public is annoyed by the TECHNICAL JARGON used by the medical profession, instead of using simple, understandable terms to patients and relatives. The average patient has not the knowledge the doctor assumes he has.

The public resents the EXCESSIVE INCOME of the medical profession. "All the doctors are buying Cadillacs." The public seems to feel that the profession's interest is in acquiring worldly goods, rather than the patient's salvation. Medical success is measured by the dollar mark.

There is LACK OF INTEREST in the insurance patient. The physician is working for the insurance company. There is refusal to refer the insurance patient to a better qualified specialist, for fear of losing the assured payment from the insurance company.

Doctors do not KEEP APPOINTMENTS. "I wait for hours even though a definite stated appointment is made, and kept by me." The doctor fails to realize that my time is as important to me, as his is to him. "I am led to think that my doctor has made a special appointment to see me, but when I reach his office I find a dozen others have been told to come at the same time."

PROFESSIONAL ETHICS are carried to a ridiculous extreme, and often handicap the patient in the free choice of physician.

Members of the medical profession fail to bear their proportionate part of the load of COMMUNITY ACTIVITIES. The private physician considers his obligation as satisfied by attention to the individual patient and acknowledges no obligation to the problems of community health.

Medical PUBLIC RELATIONS ACTIVITIES are poorly organized and inefficient. Professional men generally do a poor job in public relations, probably because of the prohibition against advertising. There are grievous inaccuracies in the reports of medical meetings, and the profession should prepare and edit such reports. Newspaper columnists signing themselves as M. D. are unduly critical of the practicing physician. *Science Service* releases are premature and misleading. Physicians of reputation should write articles for newspapers and magazines to counteract the impressions conveyed by lay journalists writing pseudo-scientific articles in the lay press. More publicity is needed to publicize the advances in medical knowledge and practice. Medical costs should be publicized in relation to (1) the costs of other public services, and (2) what the public is saved in suffering, invalidism, and life. Publicize hospital costs and faults by emphasizing that the public's failure to support them is responsible. Efforts should be made to create a more favorable understanding of the medical profession by "replacing sentimentality with sense", to assist the public to regard the doctor as a highly trained consultant rather than as a servant.

The medical profession lacks SOCIAL CONSCIOUSNESS. There is an unjustified discrimination against the negro both as patient and as physician. The medical profession refuses to support social legislation extending the coverage and benefits of medical care, implying by their attitude that "Nothing needs to be done; that the situation, as it exists today, is all right; and if a large number of our people aren't receiving medical care,—well that's just too bad."

There are severe INEQUALITIES IN THE DISTRIBUTION OF MEDICAL CARE. "Though I resent socialized medicine I prefer it to the one doctor in 15000 people now existing in some localities."

The public fears SOCIALIZED MEDICINE, and feels that unless the medical profession develops better public relations we will surely be forced into that state. "I wish to make myself plain that I am probably the last person in the world that would believe in the socialization of anything. I do, however, think that the sentiment in this direction is much stronger than most of you in the medical profession realize, and for your own salvation, and for the general philosophy of the American economic system, I hope you will make some real effort toward correcting this feeling."

Some of the suggestions above noted are of dubious value. Others can be explained by frank and free discussion. But, this is what the public is thinking, and it will take a real and effective public relations program to correct these sentiments, and change them into a favorable attitude toward the medical profession. One suggestion, only partially facetious, was that all doctors be required to take an intensive Dale Carnegie course on "How to make friends and influence people."

That is hardly the remedy. What then can we do?

First we can analyze what the public is thinking?

What are the complaints that have been voiced?

A lack of personal interest in the patient. Excessive costs of medical care. Overspecialization, carried often to ridiculous extremes. The use of technical jargon, rather than plain understandable terms. Excessive income of the medical profession, out of proportion to other professions and businesses. Abuse of insurance practice. Failure to make and keep appointments. Foolish and extreme application of the principles of medical ethics. Failure of doctors to carry their proportionate load in community activities. A poor, unintelligent public relation program. The lack of social consciousness on the part of the medical profession. Inequalities in the distribution of medical care. A definite fear that socialized medicine will result if the abuses are not corrected, and corrected promptly.

To many of these complaints we can plead guilty, and it is only when we acknowledge our faults that we reach the mood where we are ready to take effective action. There is great merit in the old evangelical principle that salvation only follows repentance.

Some of these things can be corrected only by planning, and execution on the higher organizational levels, but many of them are matters which must be brought to the attention, and corrected by the local society, and the individual physician. The most important and the most convincing Public Relation activity is that which takes place at the local level. There are two approaches at that level. One, and probably the most important, is the contact of the individual doctor with his patient.

THE INDIVIDUAL APPROACH. The patient's problems are personal. Whether it is toe or head ache, whether the cause is infectious, circulatory, or emotional, the patient complains of symptoms which are of extreme importance to him. He will generally cooperate and be appreciative if he is treated as an intelligent human being. If appointments are promptly kept, or if that is impossible, reasonable explanation and apology is made; if careful study and examination is given; if reasonable explanations are offered to the patient; he will in most instances have confidence and give cooperation. But if he finds himself in a crowded office, is forced to wait long periods although he had a definite appointment, if he is rushed in and out of the office with little opportunity to explain his symptoms and no more for examination and study, given a prescription, without explanation of the condition, the treatment or the prognosis; he will consider the charges for such services to be excessive, and feel that perhaps state medicine can offer as much. If he leaves that doctor's office and becomes an advocate for state medicine I would not blame him. After all, private medical practice has one big assurance to offer, and that is personal and personalized service. If the patient is treated as just another in a production line in the private physician's office, he might as well go the whole way and have the relatively painless deduction from his pay envelope to pay for production line state medicine.

PARTICIPATION IN COMMUNITY ENTERPRISES OF MEDICAL INTEREST AND IMPORT should be both the duty and the privilege of the private physician. Too frequently do doctors fail to take an active interest in the operation of local organizations which are concerned with medical care, or which have medical interest and contacts. Later, after failing to participate in the organization and operation of such agencies, they are very free in their criticism of features of the operation of which they do not approve. Of course participation takes time, but it is worth it. In the past, members of the medical profession demonstrated a totally unjustified aloofness from mundane affairs. Such an attitude was not justified then, and certainly cannot be justified now.

MEDICAL FEES are the concern of every member of the profession. Nothing receives wider comment than a report of an excessive charge which has worked hardship. It is unquestionably true that many fees are too high. No fairminded physician will deny that. It is not only the big fee which may be excessive. But, to leave out the matter of

the excessive fee which is disproportionate to the service rendered, there remains the incontrovertible fact that good medicine is expensive, and is becoming more so. Hospital beds, nursing care, laboratory and x-ray services, and expensive therapeutic procedures, are more and more essential as medical knowledge grows. It cannot be denied that the costs of illness constantly mount to levels above the ability of very large groups of the population to meet without assistance. Governmental assistance is suggested, on the basis of compulsory taxation. Few of us believe that to be the acceptable remedy, and we can suggest another, and a better.

The individual physician should, even must, help his patients to secure voluntary insurance to meet the catastrophies of serious illness. Only by such means can the wage earner, or average white collar worker, meet the heavy costs of illness. We, as private physicians, have a vital role in spreading the number of those covered by the Blue Cross and Blue Shield plans of prepaid hospital and medical care.

Other means of influencing public opinion to a more favorable attitude toward the medical profession can best be utilized through the activities of the LOCAL SOCIETIES. The number and variety of those efforts will depend upon the initiative and energy of the membership.

GROUP MEETINGS should be arranged. Local organizations patterned on the Virginia Health Council should be organized in each community. In meetings of such groups can be discussed medical needs and problems, facilities and services, tuberculosis control, Red Cross cooperation, mental hygiene programs, rural medical needs, crippled children's activities, dental services, cancer control, prenatal and maternal health problems, nursing care, and all the various activities which center on or closely affect the medical profession and its activitites.

LOCAL ORGANIZATIONS AND CLUBS should be encouraged to have programs of medical interest and speakers should be provided. Woman's Clubs, the civic luncheon clubs, parent-teacher organizations, labor unions, veteran organizations, colleges and schools, home demonstration groups, all the numerous organizations which are so characteristic of American life, are constantly in search of programs and speakers. The local medical society and its members are missing a great opportunity and failing in their duties, if they do not encourage and participate in the presentation of medical topics to such representative groups.

The medical profession has nothing to sell but service. And, as a corollary, the medical profession can speak with authority only on the subject of medical services. The public is interested in our problems only as they relate to their own personal lives and situations. We have no vested interest that anyone is bound to respect.

Our needs are basically two. First, to provide good medical services, and, second, to demonstrate conclusively to the public that the services we provide are the best, and will continue to be the best, under the present system of free and untrammelled private practice of medicine.

That can only be done if the profession is fully alerted to the actual emergency which exists. It can only be done if we see the dirt in our own house, and institute prompt cleaning. The very best in public relation efforts are required, and the most effective are those which take place at the level of the individual with his patient, and the local medical society in the community.

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MANAGEMENT OF DIABETIC COMA*

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For present purposes we may speak of diabetic acidosis and coma under the same heading, the difference being one of degree, that difference being important, of course, as bearing on prognosis.

The first idea that I want to express is that we are dealing with an emergency. There are still too many deaths from diabetic coma, just as there have been too many since insulin was introduced in 1922. I think that is true because of the failure to use insulin in patients who require it, a failure of patients who are taking insulin to carry through with its use in some intercurrent illness, and the failure to recognize impending acidosis and to treat it promptly. I think the reason for these failures is that since the very beginning we have tended to make the subject too complicated. As a result, many practitioners have been frightened off, or feel it impossible to devote the time necessary for the subject and have failed to prescribe insulin when it is needed. If that is true, the remedy for the unduly high mortality should come through an effort to simplify the management of these conditions and to so educate both the physician and the patient along lines simpler than those we have followed so long. I think there is a definite tendency now toward that simplification. In this discussion I shall, I'm afraid, present my subject in a manner which most any expert in diabetic management would think over-simplified.

I believe that it is possible for almost any practitioner, if it should be necessary, to treat diabetic acidosis or coma at the bedside without access to any elaborate laboratory facilities at all. If he approaches the case as he would a woman in labor, determined to stay closely at the bedside and see it through, the equipment need be hardly more than a catheter, reagents for testing the urine, and an ample supply of the quick acting insulin, to which Dr. Jordan referred as the only one to consider in coma. I do not mean to minimize the helpfulness of a competent laboratory to determine the blood sugar and to determine the CO_2 combining power. Those things are helpful, but I do think it is not going too far to say that, if it should be necessary, a case might be successfully treated without either one. You may feel that without a blood sugar determination as we go along, the blood sugar will possibly be abnormally high too long. Actually, I think it matters not how high the blood sugar may be while we are treating acidosis. We may emphasize that now we are treating acidosis and not diabetes. The point about blood sugar that we want to keep our eye on is that it doesn't go too low, as Dr. Jordan emphasized in one place. And by frequent examination of the urine we are reasonably safe-guarded against that complication.

Putting it as simply as I can, I think the treatment of diabetic coma is to give insulin promptly, plain insulin, and to give enough of it, in divided doses. There are other things of importance, but that is of so much more importance that I would be willing to disregard the others if necessary to get that emphasis.

The question comes as to the dose. I was pleased to hear Dr. Jordan speak in terms of relatively small doses, at least not in terms of the large doses we sometimes hear advocated. If we are dealing with coma, I think it is rather immaterial whether we begin with 40 units or 50 units or 60 units. I think it is rarely advisable to begin with larger doses, at least unless we have the backing of laboratories for examination of the blood. Perhaps as good a figure as any to have in mind for adults would be 50 units, always remembering that we intend to remain there and to repeat it promptly. How promptly? Well, ordinarily a second dose would be indicated perhaps within 30 minutes or maybe an hour, all of this being based upon examination of the urine for sugar and ketones as we go along. It is not infrequent to hear it said that the patient should have perhaps two or three hundred units within the course of 2, 3 or 4 hours. I don't doubt that some of them would need those larger figures, but I also believe that we work very satisfactorily in many cases with a total in the first three or four hours of not over 150 units, 200, and sometimes as little as 100.

There are several points about the management of diabetic coma on which not every clinician is agreed. One of those is the question as to whether

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glucose should be used. It is undoubtedly a neater job, I suppose, to overcome diabetic coma without putting glucose into the patient. For my part I feel more comfortable in giving the dosage of insulin that seems to be indicated if I know that I am, myself, buttressing that insulin with a reasonable supply of glucose. And I repeat that I don't think it matters at all how high the blood sugar goes. So that, perhaps not at the first dose of insulin but shortly after, the 2nd or 3rd, we are apt to give glucose. That can be either in the more concentrated form, intravenously, or it can be in the weaker glucose solution with a view to the fluid supply we want to give. If the patient is not comatose and not vomiting, oral administration of some simple sugar such as orange juice is suitable.

Another question on which there is by no means universal agreement is the use of alkali. Many excellent clinicians make it a routine practice to administer alkali in diabetic coma. I do not think I am familiar with any results that are proven to be better than in a series of comparable cases in which it was not used. There are certain cases which I would describe as failing to improve under the management without alkalis, in which we might suspect that there was a type of acidosis of a different kind from the ketone acidosis, that kind represented by muscular metabolism, in the old days referred to as lactic acid acidosis, and in the event that we do not get the response and have reason to suspect that there is a mixed type of acidosis, then I think the use of alkali is definitely indicated.

There is another point on which large figures are frequently mentioned and that is the matter of fluids. Undoubtedly these patients are usually greatly dehydrated and they definitely do need fluids, but I think it is well not to disregard what we have thought of as contra-indications toward over-loading the circulatory system, and that is going to apply more especially if the patient comes in the elderly group and has the kind of circulation that demands more respect than in younger people.

As to gastric lavage, if the patient is vomiting I think it is helpful, in which case we might very well use a saline solution and leave some of the solution in the stomach with the idea of replacing lost chloride. But, unless there is vomiting, I think that there is no special advantage in the gastric lavage.

We not infrequently, perhaps usually, see improvement in the laboratory tests, a disappearance of the ketone bodies from the urine, a rise of the CO_2 of the blood, prior to any great improvement in the bedside picture. But when these laboratory improvements show themselves, I think ordinarily we can feel pretty confident that the clinical improvement will follow along shortly in the wake.

Having reached that point, then we begin to take up the idea again that we are dealing with the treatment of diabetes mellitus and proceed gradually to ease in on the dietary regime suitable for that individual patient and the regular spacing of doses of insulin, perhaps a return to protamin zinc instead of the quick acting type.

Not particularly with regard to the therapy of diabetic coma which I am supposed to talk about, but on the diagnostic side as bearing on diabetic coma, let me say roughly that the symptoms of diabetic coma come under three main headings: respiratory, as represented by the Kussmaul type of breathing; the cerebral, as represented by irritability, stupor, coma; and the abdominal, nausea, vomiting, abdominal pain, and fever. Now here is a point I want to bring out: Whether or not it is due to dehydration, there is something that in certain of these diabetic acidosis cases causes a leukocytosis. That fact has been recognized by numerous competent observers. Now, when you add leukocytosis to nausea, vomiting, abdominal pain, and fever, you certainly have a situation which will make you scratch your head as to whether or not you have a patient with an abdomen that requires surgery, and that can be a very awkward decision to make. I think the classical reliance that the surgeons put upon the matter of tenderness and rigidity is probably the best point on which to resolve that dilemma, as to whether you have a patient with a surgical abdomen whose diabetic coma may indeed have been precipitated by something like an acute appendix. If there is tenderness and rigidity, then I believe that just as soon as the acidotic state will permit, it is better to assume that the patient does have a surgical abdomen and treat is as we would in another patient.

But, again, I think that the matter of diabetic coma turns around the prompt use of insulin, and its administration in adequate quantities in divided doses.

BLOOD DISTURBANCES AND ANURIA RESULTING FROM SEVERE BURNS

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Disturbances in blood physiology and associated kidney dysfunction are dreaded complications of severe burns. These complications are closely linked with abnormalities of the plasma hematocrit and electrolyte balance. Some of the more recent work relating to the disturbances of fluid balance in the body should furnish a clue as to the most effective method of treatment. These observations which we shall make are valid for severe burns.

By the use of radioactive sodium, Fox and Keston[1] have shown that there is an increase in the sodium content of injured tissue—including burned skin. This increase is over and above the amount of sodium which accompanies the edema fluid and, therefore, indicates an increase in the intra-cellular sodium content. In severe burns, as much as one-half of the extra-cellular sodium of the entire body (the sodium of the plasma and the interstitial fluid) may be made unavailable for the body's normal use because of fixation in the injured tissue. The volume of circulating plasma depends to a great extent on the total volume of the extra-cellular fluid and the concentration of the sodium. With the loss of this extra-cellular sodium as "burn sodium", the extra-cellular fluid is immobilized as edema, and thus one-half of the extra-cellular fluid may be removed from circulation. This edema occurs not only at the site of the burn but throughout the body, i. e., in the liver, lungs, and other tissues.

There is a second indication of the disturbance in sodium balance, namely, the urinary retention of the sodium ion. Rosenthal[2] found that the body retained as much as 20% of the body weight of isotonic sodium chloride solution during the first two days following a burn. This isotonic saline is retained because of the body's need for the sodium ion. Excretion of sodium did not return to normal until ten to twenty days following burns. This accumulation of sodium could not be blamed on anuria, as some might suggest, because, while this retention occurred, an excess of potassium was excreted. This potassium was twice the amount released from traumatized tissue.

Because of the redistribution of the sodium ion and the loss of fluids into the tissues, the burned patients develop a thirst. If this thirst were to be slaked according to the patient's desire for fluids, they would be in danger of developing water intoxication. The mechanism of water intoxication is this: When water is ingested by mouth or given as glucose in water intravenously, there is a retention of extra-cellular water because of kidney dysfunction. Since there has been no corresponding intake of salt, the extra-cellular fluid becomes hypotonic. The cell wall is a semipermeable membrane which selectively passes water and salts. Within the cell is an isotonic solution made up primarily of potassium and magnesium salt. In order to establish equilibrium, the intact cell wall does not pass the potassium across the membrane but rather distends itself with an effort to take on the water from the hypotonic extra-cellular fluid and thus establish equilibrium. The systemic results are headache, dizziness, vomiting, cramps, convulsions, and finally death. Moyer[3] found in dogs that had been burned and given serum intravenously and water by mouth, *ad lib.*, that the autopsy findings, after the animals had died in convulsions, were extreme hydration of all tissues. When the brain was sectioned, water dripped from the boggy, cut surface.

This condition is accompanied by a derangement of the chloride ion. One of the men who observed the significance of the chloride ion was Trusler[4]. He treated a severely burned two-year old child with water by mouth to relieve thirst and when the child died with convulsions, the blood chlorides were found to have dropped to a level of 140 mgm. per cent. Trusler carried the work over into experimentation with dogs and found in many cases of severe burns a fall in the plasma chlorides. His work records nothing of the disturbance to the sodium ion. There was probably an accompanying

fall in the sodium ion or the patient would have had very severe alkalosis.

The increased excretion of potassium has already been mentioned. As the result of the selective action of the semi-permeable cell membrane in accordance with Donnan's principle, the potassium ion is the primary cation within the cell, while outside the cell the primary cation is sodium. The cell membrane is a delicate structure and with the injury from the burn the membrane loses its ability to retain the potassium ion which passes out into the extra-cellular fluid to be replaced by the sodium ion which passes into the cell.

Rosenthal[2] has found that the amount of potassium released into the circulating blood following a severe burn is a quantity greater than the normal potassium content of the burned area. This amount is sufficient to cause death in animals in shock. He has found that shocked animals are six to nine times more sensitive to potassium than are normal animals. He wondered if perhaps it was not a general increase in sensitivity. Other cations were injected, but there was no evidence of a generally increased sensitivity. On the basis of this work, Rosenthal attributes a great part of the toxicity of burns to the increase in the potassium ion in the circulating blood.

It is quite generally agreed that following a burn the values for the formed elements of the blood are involved in a biphasic fluctuation. Accompanying the loss of extra-cellular fluid into the tissues is an increase in the hematocrit reading and, of course, the resultant increase in the hemoglobin percentage. The general impression is that the loss of extracellular fluid results in a percentage increase of the volume of the red blood cells. Berman[5] found that in dogs which had been splenectomized before burning, the hematocrit and hemoglobin readings were much lower than in normal animals which had been burned. At autopsy the unsplenectomized animals were found to have very contracted spleens. This would indicate that perhaps the contraction of the spleen is a much more significant factor in the elevation of the hematocrit than the loss of circulating plasma volume.

Following the shock phase of severe burns the hematocrit goes into a gradual decline. The hemoglobin returns to normal and then gradually recedes to an anemic level. This anemia increases because of three factors:

1. The reabsorption of the edema fluids.
2. Primary destruction of red blood cells at the site and time of burn.
3. Increased fragility of the red blood cells due to sepsis, toxins, etc.

Probably the most intriguing and controversial question in burn physiology relates to the fate of the blood plasma. The initial shock period following burns is characterized by a proportionate loss of plasma volume, indicated by the rise of hemoglobin percentage and the increased hematocrit. Part of this disproportion may well be accounted for by the increase in the number of circulating red blood cells from contracture of the spleen, as has already been mentioned. A second cause contributing to the loss of circulating blood volume is the redistribution of the sodium ion and consequent loss of circulating fluid as edema.

Another factor which has generally been conceded an important role in the increased hematocrit is the loss of protein and fluids from burned surfaces. Treatments directed against such loss have included pressure dressings and multiple infusions of plasma to replace the protein losses. More recently this latter procedure, namely, the administration of large amount of plasma, has come under question. Fox and Keston[1] suggest that the loss of the plasma to the injured tissue is a questionable factor. In the case of a dog with an injury to the leg, there was a weight gain of only 69 gm. in the injured leg while blood chemistry determination indicated a 700 cc. loss of circulating plasma, ten times the weight gain of the leg. They go on to suggest that the protein lost in the fluid from injured tissue comes from the tissues themselves. In healthy subjects, the protein of the body is confined to the vascular bed and in the intra-cellular spaces with osmotic equality between these two and the interstitial fluid. The electrolytic solutes are present in so much greater amounts than the proteins that the latter have little significances in the control of the amount of water present in body compartments. The plasma protein concentration does not determine the plasma volume. As evidence, water and electrolytes can be drawn from the body by means of peritoneal injection of hypertonic solutions. There is a resultant fall in plasma volume when water and electrolytes are drawn into the peritoneum and out of circulation. The total plasma proteins are not disturbed. The plasma volume, however, is not re-

stored by the administration of plain water. This would seem to indicate that it would be of little use to administer plasma without administering isotonic electrolyte fluids as well.

Clinical evidence has borne this out. Fox[6] reports that the hemo-concentration of shock could not be successfully treated with plasma albumin. Rosenthal[2] states that the only good effects from serum administration were from the electrolytes of the serum. Serum albumin was reported as inferior to saline.

In view of all these factors, i. e., the loss of sodium ion, the increase in potassium ion concentration, the increased hematocrit and the fall of plasma volume, what is to be the treatment of the shock phase of severe burns? Efforts should be directed at replacing the sodium ion, inducing the excretion of potassium and other toxic products and maintaining the plasma volume. In 1945, Harkins, Cope and associates[7] suggested therapy for burn shock which consisted in part of the use of plasma and intravenous physiological electrolyte solution. By physiologic electrolyte solution, they refer to a combination of two parts of normal saline with one part of isotonic sodium bicarbonate. They suggest the use of whole blood only in those with hematocrits below 60 and then the use of 500 cc. of whole blood only with every 1000 cc. of plasma.

Moyer[3] and his associates at the University of Michigan have done some very interesting work with burned dogs. They have devised a standard burn and have used the following methods of treatment:

1. Saline bicarbonate intravenously.
2. Saline bicarbonate and serum intravenously.
3. Serum intravenously and saline bicarbonate by stomach.
4. Defibrinated blood intravenously and water *ad lib* by mouth.
5. Difibrinated blood and saline bicarbonate by mouth.

Of these various combinations there was no doubt that the biggest percentage of survivals were with the use of defibrinated blood intravenously and the saline bicarbonate combination by mouth.

There are three or four comments that should perhaps be made about this therapy. The first is directed at the criticism that patients in burn shock usually are vomiting. Dr. Moyer noted that the movement of salt solution out of the stomach was usually very small for the first hour and a half and many of the dogs vomited. After the blood was given, the rate of the stomach emptying was within the range of fluid movement for normal dogs and vomiting stopped. The second comment is relative to the comparison of intravenous saline bicarbonate and the oral administration of the solution. In the dogs given saline bicarbonate by vein and serum intravenously, the results were either inadequate treatment or death as a result of pulmonary edema and congestion. It was decided that the only safe way to give salt solution was by a route from which the animal could control the rate of absorption itself—either by stomach, rectum, or subcutaneously. The third comment is regarding the use of whole blood in the presence of hemo-concentration. In burned animals a hematocrit of 75 to 80 per cent was maintained for eight to ten hours with accompanying adequate saline bicarbonate intake without any general ill effects or any evidence of damage to the organs on microscopic section. There have been many writers who have lately advocated whole blood in the early treatment of burns. Trusler[4] advocates it as the only way of maintaining blood chemical balance. Corcoran and Page[8] suggest its use with sodium or calcium lactate. Abbott[9] says that the early and frequent use of transfusions is the only way of combating the later secondary anemia. He advocates the use of whole blood and saline. The last comment on this combination is relative to the use of defibrinated blood. Bruneau and Graham[10] have issued a caution against the over use of citrated blood. The citrate radical in the blood forms a complex soluble salt with the calcium ion and few calcium ions are released. The result is tetany because of depressed calcium ions. This same phenomenon of salt formation is given credit for the anti-coagulant properties of sodium citrate, locking up the calcium ion which is essential for blood clotting. These authors have determined five gm. of citrate as the maximum safe dosage in a 125 pound man. Elman and Lischer[11] in experiments planned to prolong the survival time of dogs subjected to hemorrhage found that there was a marked increase in the survival time of dogs treated with heparinized plasma over that of dogs treated with citrated plasma.

We might ask "How often are the kidneys involved in serious burns?" Goodpastor and his associates[12] at the Thorndike Memorial Laboratory

autopsied forty-seven patients with fatal thermal burns admitted to the Boston City Hospital between November, 1942, and July, 1944. Eighteen of the forty-seven showed definite morphological changes in the kidneys at autopsy, which could be attributed to their burns. The renal lesions in these eighteen patients were entirely similar and consisted of:

1. *Tubular casts made up of pigment and desquamated epithelial cells* were found in the ascending and descending loops of Henle and in the collecting tubules. The pigment was thought to be hemoglobin. Shen's work[13] would tend to bear this out.

2. The second lesion noted in the kidneys of the eighteen patients mentioned was *a degeneration and necrosis of the renal tubules*.

3. Also, in about 40 per cent of this group, *regenerating epithelium* was noted which was indicative of repair of tubular necrosis.

Goodpastor and his associates found that in general the N.P.N. was higher and the oliguria much more severe in burned patients who showed kidney lesions at autopsy, than in those who did not.

There is a great deal of similarity between the renal damage produced by burns and that following hemolysis from incompatible transfusions, black water fever and other hemolytic diseases. Also, some features of the kidney involvement in the crush syndrome show some similarity. The common factor in all of these conditions is "an intravascular hemolysis due to sudden and rapid destruction of erythrocytes or muscle cells. The destruction liberates large amounts of hemoglobin or myoglobin and fragments of destroyed cells into the systemic circulation".[14]

The pathological physiology behind true burn anuria or oliguria is a complex thing. It should be pointed out that burn anuria is not due entirely to shock, but shock may be a factor, as we will see later. The anuria due to traumatic and hemorrhagic shock is due primarily to reduced blood flow to the kidneys and not to an organic kidney lesion. In burns there is actual kidney pathology in a certain percentage of cases, plus the factor of shock.

Burn anuria is possibly partly due to blockage of the loops of Henle and the collecting tubules by pigment casts, as described above. Also, undoubtedly, the degeneration and necrosis of the renal tubules plays a part. What causes this necrosis is hard to say. It may be due to the often talked of—never proved—"toxemia" associated with burns.

Corcoran and Page's work[8] on hemorrhagic shock, tourniquet shock and the crush syndrome suggests the possibility that there may also be a renal vasoconstriction of humoral origin in burns. This vasoconstriction coming on in the stage of burn shock, if prolonged, may persist even after restoration of the normal arterial pressure. This, they found, was the case if shock was prolonged in the conditions they studied. It is quite possible that patients who have had prolonged shock from burns may suffer from this same type of renal vasoconstriction even after the shock is relieved.

Several English workers have suggested methods of treatment of the impaired kidney function resulting from crush or compression of the limbs[15,16]. Maitland in 1941[16] referred to some work that Crile did in the early years of this century on the permeability of the renal epithelium to certain salts in isotonic solution. One of these salts was sodium sulphate. Maitland suggested that sodium sulphate be tried in the "crush kidney syndrome". Later he reported a case in which he used it[17].

Best and Taylor[18], in discussing sodium sulphate diuresis, refer to Cushney's work on saline diuresis published in the *American Journal of Physiology* in 1902. They state "The action of sodium sulphate is ascribed by Cushney chiefly to reduced re-absorption. Since the epithelial cells are relatively impermeable to sulphate, it increases the osmotic pressure of the fluid within the lumen of the tubules; the work demanded for the reabsorption of the usual quantity of fluid exceeds the capacity of the tubular epithelium." They further refer to a paper that Eadie and his associates published in the *American Journal of Physiology* in 1932 in which Eadie expressed the opinion that sodium sulphate also increases the renal blood flow and the filtration rate.

Just recently Olson and Necheles[14], of Chicago, have done some experimental work in dogs on the "Effect of Infusion Fluids and Diuretics on the Anuria Resulting from Severe Burns". In their preliminary work they found that the severity of the anuria could be correlated with the degree of hemoglobinemia—or free hemoglobin in the plasma. Also they found that only a severe burn would produce burn anuria in dogs. They tested many solutions and found that plasma would produce a distinct excretion of urine if the plasma hemoglobin was only moderately high. 2.5 per cent sodium sul-

phate was the only solution that they had tested to date that would in all cases stimulate the kidneys to excrete after a severe burn.

A word might be said about alkali solutions. They are widely used in an effort to alkalinize the urine in patients with hemoglobinuria from transfusion reaction, black water fever and crush syndrome. The basis of their use is that it is thought by some, when hemoglobinemia is present and the urine is acid, there is a precipitation of acid hematin in the renal tubules, causing blockage. Maegraith and Havard[19] have warned against the use of alkali therapy in the treatment of black water fever. They state that when the excretory function of the kidney is impaired, the urine may remain acid, even in the presence of a severe alkalosis. This alkalosis is the dangerous thing and may be sufficient to kill the patient. Therefore, they conclude, "intensive alkali treatment of blackwater fever is dangerous and the reasons for its introduction were unsound." Kirsner and Palmer[20] have shown that patients under calcium carbonate therapy for peptic ulcer may develop reduced kidney function while in alkalosis.

In 1945 the Army Malaria Research Unit, Oxford[21], studied the effects of an intensive course of alkali on the kidney function of normal subjects. All of the subjects studied had disturbances in renal function. They concluded that large doses of alkali should not be administered in conditions where renal failure may supervene. Olson and Necheles[11] found that alkali solutions were definitely inferior to sodium sulphate. They were effective in treating the anuria if the free hemoglobin in the plasma was below 1500 mgms. per cent. Above this level sodium sulphate was necessary to start the excretion of urine.

Sodium sulphate in Olson and Necheles experiments was consistently non-toxic. It was a good diuretic and it had the advantage that it preserved the chloride ion; many other diuretics do not. This conservation of chloride ions is, as has already been pointed out, an important factor in the treatment of burns.

It was Olson's work that brought us to try sodium sulphate clinically as a diuretic in a severe burn we recently treated. It was our impression that it worked remarkably well.

CASE REPORT

The patient was a forty-nine year old white woman who, around 5:30 A. M. on March 13, 1947, caught her clothes on fire from an electric heater.

When seen in the accident room shortly thereafter she had second and third degree burns of about 90% of her body. The only areas not involved were small areas of her hands and feet, the scalp, and a portion of her left buttock. It was hard to estimate how much of the burn was third degree, but we thought about 50% was. Autopsy a week later confirmed our estimate.

During her first few hours in the hospital the patient was put in vaseline gauze pressure dressings that covered practically her entire body. She was given 1000 cc. of plasma and 1000 cc. of 5% glucose in saline intravenously and did not appear in marked shock. She was conscious and her pulse was around 80 and of good volume. It was, of course, impossible to obtain her blood pressure because of the dressings.

The patient stated that she had last voided at 2:00 A. M., 3½ hours before she was burned. At 1:00 P. M. she was catheterized and 75 cc. of concentrated urine obtained. A retention catheter was left in.

In the next four hours the patient received 500 cc. of whole blood but she excreted only 4 cc. of urine. At the end of twelve hours she had passed a total of 79 cc. of urine. It was practically certain that most of the 75 cc. of urine obtained at catheterization was excreted between 2:00 A. M., the time she last voided, and 5:30 A. M., the time of her burn. We decided that the patient was in true burn oliguria or anuria at the end of twelve hours from the time of her burn.

It was at this time that we began sodium sulphate therapy.

In the next twelve hours (the second twelve hours after her burn) she received approximately 800 cc. of 5% glucose in normal saline and 2400 cc. of 2.5% sodium sulphate. In this twelve hours she passed 500 cc. of urine.

The N.P.N. the day after her burn was reported as over 120 mg. By the use of sodium sulphate plus plasma, whole blood, glucose and saline, we were able to maintain a urinary output that averaged 1640 cc. per day for the five days between the day of her burn and the day of her death.

Her N.P.N. the second day after her burn was

57 and the day before her death it was 60. It was not checked any more frequently because the severeness of her burn made it almost impossible to find veins. In fact, we had to cannulate her long saphenous vein the day before her death in order to administer fluids.

With sodium sulphate and other fluids we were able to maintain a good urinary output and to reduce and maintain the N.P.N. at a moderate level until the time of death in a woman with 90% of her body severely burned.

SUMMARY

The use of isotonic intravenous sodium sulphate constitutes only a small part of the treatment of fluid imbalance. Its purpose is the induction of diuresis. The trend in primary therapeutic measures directed at the correction of the disturbances in fluid balance would seem to be in the direction of the use of more blood and of defibrinated blood.

The use of the oral route in the administration of fluids seems to be gaining preference over the intravenous route for the maintenance of fluid balance. If to this scheme is added the intravenous use of sodium sulphate in indicated doses, the sodium ion should produce none of the hydration indicated by Moyer. The diuresis produced may be a factor in the early restoration of normal blood physiology.

In many cases of severe burns the selected therapy, no matter what its nature, will do little to alter the fatal termination. In other cases the recovery is assured with any of the more modern methods of treatment. Between these two extremes is a group in which the survival may be entirely dependent on the nature of the treatment, on the restoration of fluid balance and blood volume and on the induction of adequate diuresis to eliminate the nitrogenous waste products that flood the circulation after a burn. It is this group that may be benefited by the addition of an effective diuretic to the more definitive fluid therapy.

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MEDICAL CARE AND HOSPITAL ADMINISTRATION*

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The subject assigned me is Medical Care and Hospital Administration. It is apparent that the two activities are closely related and interdependent. The difficulty in discussing the topic is also apparent because of the many aspects and almost unlimited scope embraced by it. Only a few phases can be considered and they rather briefly—with no claim to originality.

The evolution of hospitals in Virginia parallels rather closely the development of general education in the State. During the early period teaching was largely limited to private tutors, privately owned and conducted schools, and a few state institutions of higher learning. Necessarily only a relative few could afford such training. After the Revolution and establishment of an independent Republic the demand soon arose for a system of education available to the people generally and one that would be supported by the State and local communities open and free to all. Much progress has been made; yet public education is still imperfect and continues to be a matter of much study and planning for further needed improvements.

The history of hospital development and growth in Virginia is similar but of more recent date. Some of us here can remember when there were few hospitals in the State. They were located in the larger cities, at the two medical schools, and the State supported institutions for the insane and tuberculous sick. With the exception of the State and municipal hospitals, the others were privately owned and operated. The public then thought of a hospital as a place of last resort for the sick. In consequence the mortality was high. Most people preferred to die at home in a familiar environment and among loved ones.

In comparatively recent years hospitals constructed and operated by communities on a non-profit basis have increased at a rapid rate. Public demand has stimulated the change. In fact, today in rural Virginia, hospital facilities and better medical care are regarded as needs only slightly less pressing than improved public education. If any question as to the inadequacy of such health provisions in Southwestern Virginia were raised, a careful examination of the records of the Army Induction Station at Abingdon during the recent war would remove any such doubts. There we saw many young men with remediable physical defects and mental disorders that, if corrected, would have qualified them for military service and a better opportunity for success in civilian life.

However, no one who knows the problems of hospital administration and costs would venture investment of capital in many sparsely inhabited and relatively poor communities in which numbers of those rejected boys live. As a member of a commission established by the Virginia Advisory Legislative Council I had the opportunity two years ago to observe that similar, and even worse, conditions prevailed in other sections of the State. In many areas, though some sort of education was provided, hospital care of the poor was distressingly inadequate or totally lacking.

The chief problem in providing hospital care of the sick in small communities and rural sections is one of finance. A community confronted with the need, even though funds may be available for hospital construction and equipment, must face the probability of recurring annual operating deficits. Private hospitals in cities can refer patients unable to pay for hospital care to municipal institutions without much delay even in emergency conditions. A community hospital in rural areas must accept many such cases. Then, too, during periods of economic depression many not regarded even as medically indigent cannot finance an expensive hospital illness.

Those who have no knowledge of hospital administration have no appreciation of the costs of operating such institutions. They are prone to compare hospitals with hotels. In hotels most of the guests go to the dining room for meals. No laboratory facilities, operating room, X-ray, physical therapy, nursing staff or elaborate clinical records are necessary. Yet hospital charges today are little higher than the rates, including meals, of the better hotels.

*Read by invitation of The Virginia Council on Health and Medical Care, at a conference at Abingdon, December 9, 1947.

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Another important item in hospital administrative costs is the expense involved in meeting the standards imposed by such agencies as the American College of Surgeons, the American Hospital Association, and the State Board of Nurse Examiners. No one questions the desirability or necessity of such agencies. An institution charged with the responsibility of caring for ill people should not only be licensed by the State, but should be recognized only if it conforms to the requirements of authorized standardizing agencies. Yet this constitutes a considerable increase in the costs of hospital operation.

During periods of inflation such as we are now experiencing, the administrative problems are greatly accentuated. Every department of the hospital shows rising costs in salaries, wages and supplies of all kinds. Necessarily increased rates must be charged for room, board, nursing care, and many other items. Recently, the Director of Public Welfare of Henrico County reported to his Board of Supervisors that hospitalization cost in January of this year was $6.58 per day; by October first the daily expense was $9.80. In consequence, there are many patients, especially those with fixed incomes, who cannot finance an unforeseen hospital illness at current rates. Yet, they are embarrassed to admit that they belong in the category of medical indigents.

Rural community hospitals in recent years have been helped greatly in caring for the totally indigent by social welfare agencies and more recently by counties matching State funds in the hospital care of this group. For years, however, the welfare payments to our local hospital were considerably less than the actual costs of hospitalization of these patients. Furthermore, because of the limited funds available, only emergency patients could be provided for. At all times, a much larger number of people with less urgent diseases, though frequently barring them from gainful, self-supporting employment, necessarily were denied hospital admission.

The medical care of the poor constitutes a serious financial problem for hospitals generally. Our two large medical school hospitals in Richmond and Charlottesville have been confronted with operating deficits in increasing amounts over a period of years as the result of indigent patients referred to them. In those State hospitals a large number of poor patients are necessary for instruction of medical students. But the financial load has become so heavy that recently President Darden, of the University of Virginia, stated that the funds appropriated by the State Legislature to the University were being spent in such large amounts for the care of the poor patients in the hospital as to cause a serious embarrassment to the other educational departments of the University. He made a strong appeal for a solution of their problem.

Various measures have been proposed.

Socialized medicine has been discredited where tried and will not meet with support of the American medical profession.

Federal aid to the States in helping to care for the indigent carries with it the danger of bureaucratic control, wasteful practices and political dictation.

Hospital insurance contracts voluntarily purchased are commendable and becoming increasingly popular. Yet, they fail to provide protection to those who need it most, since the indigent cannot pay the premiums. A bill pending in a Congressional committee would provide grants of money to the States to aid in the medical care of those unable to purchase hospital insurance. Yet such funds inevitably must be obtained by taxation of the citizens of the several states. From each dollar so collected there must be deducted the heavy overhead costs of Federal administration.

The following conclusions, therefore, seem warranted:

1. The health of the nation's citizens both in peace and war is vital to the national security and economic welfare.

2. At all times in any community, during periods of inflation and depression, there is a large group of indigent and medically indigent who cannot finance an unforeseen and expensive illness.

3. Community hospitals have a serious problem in providing costly modern medical care to the poor in the areas served by them unless they are adequately compensated.

4. The care of the indigent sick is most effective if administered on a local rather than a national basis.

5. The similarity of community needs as regards public education and health has been recognized in recent years. The demand for better and more available local hospital treatment is increasing rap-

idly in Virginia.

6. It is suggested that the approach to a satisfactory solution of the health problem and needs might be undertaken in a manner similar to that employed in financing public education. This suggestion, in part, has already been adopted in Virginia by State appropriations aiding the counties in the hospital care of the indigent. Yet, much larger funds are necessary if the surface is to be more than scratched. No one would advocate that free school education be limited to only a few individuals in a community. To make available hospital medical care to those who need it, but who are unable to pay for it, would entail large expenditures by the State and local communities. Yet, the cost of such a program would probably be considerably less than the cost of public education.

The present plan of the counties, aided by the State, of appropriating annually funds available from county treasuries is not only inadequate but haphazard. A thorough going survey and the experience of a few years of trial would enable the counties to approximate the average needs annually. To provide for such increased appropriations, a county tax specifically earmarked, similar to the present school tax, would be desirable. The tax rate for the care of the medically indigent, like the school tax, would be flexible and subject to change as warranted from time to time. Education of the public to an appreciation of the purposes and needs of the tax would require time and competent leadership. Ultimately the program might be enlarged and extended to the indigent treated in their homes. It is realized that the administrative problems would prove very difficult. Pauperization of those who should not be beneficiaries of the program would bring disrepute to the plan.

It may be argued that a people now burdened with an unprecedented tax load, national, state and local, would rebel against the imposition of an additional special tax. The alternative may well be socialized medicine; indeed in time a socialized state and nation. It can happen here as it has in one-time conservative England. Lenin, of Russia, once stated: "Socialized medicine is the keystone to the arch of the socialistic state."

In conclusion, the poor have their spiritual aspirations supplied by the churches. They are given facilities and opportunities in schools for mental training without cost. But their physical needs have largely been neglected in rural Virginia. Aside from humanitarian considerations our country's welfare and security depend greatly upon the health of its people. An increasing investment in the physical improvement of its poorer citizens will be repaid with interest. The Great Physician nineteen hundred years ago frequently interrupted a busy life to minister to the sick. Can we be satisfied, or afford, to stop short of maximum efforts in an endeavor to promote the physical welfare of our people?

Disinfectant on Handkerchiefs.

Using a disinfectant on handkerchiefs might be one step toward preventing the "common cold" from spreading, according to the London correspondent of *The Journal of the American Medical Association*, writing in the February 28 issue.

Reporting on a lecture by Dr. C. H. Andrewes, F. R. S., of the National Institute for Medical Research, on recent research on the common cold, *The Journal's* correspondent said that "some recent evidence suggested that more unpleasant germs were spread from the nose than from the mouth and throat, which led to the question whether bacteria and viruses accidentally shaken from handkerchiefs might not be of great importance. Tests showed that many bacteria might be shaken out and remain in the air. Handkerchiefs from the later stages of colds were found to be particularly effective as germ distributors. Work now in progress suggested that impregnation of handkerchiefs with a disinfectant might make them much less dangerous in this respect."

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INDICATIONS FOR BRONCHO-ESOPHAGOLOGY*

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It is not my intention to pose before you as an authority on broncho-esophagology, but rather as a neophyte recently become interested in it, and qualified by no more than a certificate from the Chevalier Jackson School of Broncho-Esophagology and a few cases which I have been fortunate enough to see since taking that course.

The bronchoscope and the esophagoscope, like the nasal speculum, Brinkerhoff's speculum for the rectum, Cusco's speculum for the vagina, or Gruber's speculum for the ear, is nothing more than a way of looking into a cavity in the body, and the indication for the use of these various types of specula are very closely related.

If a patient presents himself with a complaint related to the nose, sinuses or naso-pharynx, the use of a nasal speculum is imperative to diagnose and to treat his condition, just as the use of an ear speculum is essential to the diagnosis and treatment of diseased states of the ear.

It would be my pleasure to consider the bronchoscope and the esophagoscope tonight largely as I would think of the nasal speculum. One thinks of foreign bodies as a rule when they think of broncho-esophagology. And while Jackson has collected 3,266 cases of foreign bodies of the food and air passages, ranging from wooden applicators wrapped with cotton to Christmas tree ornaments, I do not feel that the removal of foreign bodies constitutes the principal usefulness of the art of broncho-esophagology, any more than a collection of foreign bodies removed from the nose would constitute the principal usefulness of the nasal speculum—and, I might add, it is seldom that this speculum is used for foreign body extraction, yet few foreign bodies are removed from the nose without its use.

May I be permitted here to use the experience of others in broncho-esophagology, both for diagnosis and treatment of conditions within its scope, and to say that perhaps the most important use of either of these specula is for the purpose of diagnosis.

A patient presents himself with a chronic cough. The diagnosis is bronchitis. The symptoms are chronic cough and expectoration of varying severity. When a careful history, a complete physical, sputum and X-ray studies fail to reveal the cause, bronchoscopy is definitely indicated. Of 92 cases referred to Jackson with the working diagnosis of chronic bronchitis, 40 had localized bronchial stenosis, 4 had bronchial tumors, 21 had bronchiectasis, 7 were tuberculous and only 20 had nothing more than a diffuse mucosal bronchitis. Bronchoscopy in cases of chronic bronchitis is as surely indicated as the use of the nasal speculum in a case of sinusitis.

Atelectasis is a subject of intense interest to all of the surgeons here tonight. Clerf, Brill, Jackson, Tucker and other broncho-esophagologists seem to concur in the belief that atelectasis is due to bronchial obstruction and may be best relieved by bronchoscopic aspiration of the mucus or clot that obstructs the particular segment of the lung involved. This is a relatively simple procedure and one which should be used when indicated.

Imperatori and Burman list the indications for bronchoscopy as follows:

1. Asphyxia neonatorum
2. Unexplained dyspnea
3. Dyspnea unrelieved by tracheotomy
4. Unexplained expectoration of pus
5. Unexplained cough or hemoptysis
6. Acute abscess
7. Chronic abscess
8. Bronchiectasis
9. Asthma (and I might here add that French Hansel notes that Clerf, Lukens, Moore and others are convinced that bronchoscopic diagnosis and aspirations are of great value in those patients who suffer from dyspnea that is asthmatic in origin).

Tuberculosis was at one time considered a contra-indication to bronchoscopy, but this is not true today. At the University of Michigan Hospital, bronchoscopy is employed to confirm suspected tuberculous tracheo-bronchitis, and subsequent bronchoscopies are done to determine progression or regression of the mucosal lesions. Jackson feels that bronchoscopy is only contra-indicated in hopeless cases of tuberculosis. The primary indications for bronchoscopy in definitely diagnosed tuberculosis

*Reading before the Lynchburg Academy of Medicine, May 5, 1947.

may be for aspiration where a peri-bronchial gland has ruptured into a bronchus, to remove a broncholith, to diagnose an ulcer and treat it, to diagnose scar tissue and treat it, or to determine the bacterial flora of an abscess prior to collapse therapy. Jackson has said, "All that wheezes is not asthma" and surely all hemoptysis is not tuberculous in origin. Jackson states, contrary to the general belief, he has found that tuberculosis is not the commonest cause of hemoptysis. He reports 446 cases of non tuberculous hemoptysis with 19 varying etiologies. The commonest in this group was bronchiectasis—138; next, primary carcinoma of the bronchus—82; tracheobronchitis—74; pulmonary abscess—51, and, fifth in order, no evidence of disease—34. I mention this because I have a case in this fifth classification which I will report later. Regardless of the cause, aspiration of blood clots, if not otherwise expelled, is desirable and is a strong factor in prophylaxis of bronchial obstruction, bronchiectasis and pulmonary abscess.

It is generally agreed that hemoptysis constitutes an indication for bronchoscopy, the examination being done as an adjunct to diagnosis. It is another link in the chain of diagnostic and therapeutic weapons to aid us in handling these cases.

The therapeutic advantages of the bronchoscope can be illustrated best by a case which Jackson reports of a 64 year old woman with a productive cough and hemoptysis of long standing, which was diagnosed and treated bronchoscopically. This patient had a lipoma of the left main bronchus, the bronchoscopic removal of which was accompanied by clearing of symptoms and signs.

Tumors, both benign and malignant, are not uncommon in the tracheobronchial tree, and may produce bronchial obstruction with Atelectasis, emphysema, or drowned lung. These conditions can be diagnosed by physical signs and fluoroscopy, but the character of the obstruction can often only be determined definitely by bronchoscopic examination, or, when necessary, by biopsy. So it would seem that in any case of bronchial obstruction the physician might find the bronchoscopic findings helpful.

John Richardson of Boston recently spoke of the wonderful advances that have been made in dental prosthesis. They have now developed them to the point where they are practically impossible to pick up in X-ray, and so can lodge in the esophagus or trachea and produce no obvious findings except cough or dysphagia. Having lost a patient recently from perforation of the esophagus by one of these radioparent appliances, he advised that the patient with dysphagia be very closely studied before assuming that he was a neurotic. Here the esophagoscope is an adjunct to the other means of diagnosis and has proved its usefulness time and again.

Any complaint referable to the esophagus certainly justifies an X-ray examination and, if the diagnosis can not be satisfactorily made from this, endoscopy is indicated. In 1938, roughly 2500 people died from cancer of the esophagus in the United States, and cancer of the esophagus can only be diagnosed early by means of X-ray and the esophagoscope. Early cancer of the first few centimeters of the cervical esophagus has been satisfactorily removed by lateral pharyngectomy and cancer of the lower one-third of the esophagus is being removed by the thoracic surgeon, if and when they are diagnosed early. The lack of symptoms or signs in early carcinoma of the esophagus is largely responsible for late diagnosis. The sensation we have come to know as globus hystericus is often the only one the patient experiences early, and, while all globus hystericus is not cancer but is rather in most cases a purely neurotic symptom, the fact it is so often associated with some lesion justifies our use of X-ray and the esophageal speculum in all of these cases.

Dysphagia, the one common symptom of all esophageal disease, is often ignored by the patient until it is too late. Pain, too, is a relatively late symptom.

All dysphagia is not cancer, any more than it is all globus hystericus. Ulceration of the esophagus, stenosis, web formations, and benign tumors all have to be reckoned with by roentgenology and by endoscopy.

Foreign bodies of both bronchi and esophagus are today occupying a far more important place in the field of broncho-esophagology than they will in years to come. Their removal remains a spectacular and dramatic use of thsee specula. Murdock Equen, of Atlanta, Georgia, has recently developed a magnet for removal of metallic magnetic foreign bodies which can be inserted through the laryngoscope with less trauma and less discomfort to the patient.

The General Electric Company has developed a

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modification of the mine detector so useful in the last war. They call it the Berman metal locator. It is used in determining whether or not the foreign body is magnetic and this has lessened the danger attached to the removal of magnetic bodies.

Since I have been interested in broncho-esophagology, I have had occasion to examine nine patients. One of these was a laryngoscopy in which I found nothing more noteworthy than a contact ulcer, which was not viewed satisfactorily with the laryngeal mirror. Five were bronchoscopic examinations, one of which had a diffuse thickening of the right main bronchus, with narrowed lumen and fixation, with marked widening of the carina. The history of this case suggested metastatic carcinoma and the bronchoscopic appearance was in accord with the suspected diagnosis. Another case presented a marked narrowing of the lumen of the trachea with deplacement to the left. This patient had a substernal thyroid and is at the present time in the hospital awaiting surgical removal.

Another quite interesting case was that of a white female, age 21, who came into the office coughing up considerable quantity of bright blood. This condition was only a few hours old. X-ray revealed no positive evidence of tuberculosis. This girl was hospitalized, but given no sedation. Five days after the hemoptysis cleared up, and with small series of negative sputum examinations to her credit, she was studied with the bronchoscopic speculum. All findings suggested the normal. However, a specimen of secretion was taken from the right and left main bronchi for guinea pig injection. Two months later the pig is still quite well. The girl is gaining weight, at work and feeling fine.

I won't go so far as to say this patient does not have tuberculosis, but I do feel that the specular examination of her bronchial tree and obtaining specimens from the area most likely to yield the tuberculosis organism have had a worthwhile, reassuring effect on both the patient and the physician alike.

Three of my cases have been studies of the esophagus, done by reason of vague complaints referred to this area. All patients are at present well and all are symptom free, following assurance that they have not cancer of the esophagus though all are being kept under observation.

Esophagoscopic dilatation of what is generally called cardiospasm is the ideal treatment. I say so-called cardiospasm because most of the work points to this being fibrosis or structure due to healed infection rather than a nerve involvement.

Diagnosed early and treated early, these cases respond well to endoscopic treatment.

Even the far advanced cases, in which the esophagus is much dilated and sags markedly to the right, may be cautiously dilated, though this condition usually indicates gastrostomy or anastomosis of the esophagus to the fundus of the stomach.

One of my cases was a white female, age 63, who had complained of not being able to swallow solid food for several months. I was certain there would be some demonstrable pathology, but none was found, though the scope was passed to the stomach. This woman has since eaten anything she wanted and has had no further difficulty in a period of five months. It is possible the mere passage of a 9 m.m. scope produced sufficient dilatation in this instance to give relief, although no pathologic constriction was noted.

In no instance have I found the passage of either bronchoscope or esophagoscope to do any harm, and I feel strongly that any chronic, persistent ailment, involving the esophagus or tracheo-bronchial tree should have the benefit of direct specular examination of the part involved before the examination is considered complete.

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A CLINICAL REVIEW OF PAPILLARY ADENOCARCINOMA OF THE OVARY*

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That carcinoma of the ovary has been written about voluminously implies in itself the importance of the problem. Not only is this neoplasm insidious in its onset, but, also, it is the unanimous agreement between clinicians and pathologists that this disease, of all pelvic malignancies which occur with any degree of frequency, offers the poorest prognosis. Furthermore, carcinoma of the ovary is not uncommon, ranging from 15.4%[12] to 36%[3] of all ovarian neoplasms and 13.3%[3] to 17.10%[12] of all pelvic malignant neoplasms. In a ten year series of cases, from 1932 to 1942, at the Bellevue Hospital in New York City, it was found that carcinoma of the ovary occurred in approximately 33% of all ovarian neoplasms.

Thus, the frequency of carcinoma of the ovary compares significantly with that of other pelvic malignancies, ranking next to malignancies of the cervix uteri and corpus uteri. According to Marchetti[12], 44.44% of all pelvic malignancies arise in the cervix uteri and 33.62% in the corpus uteri. In addition, the commonest malignant neoplasm of the ovary is the papillary adenocarcinoma which occurs in approximately 62% to 83% of all ovarian malignancies[3,7,9,12,17]. The latter figure was found to be true in this study.

MATERIAL

The patients used in this study were those in whom the original diagnosis of papillary adenocarcinoma of the ovary was made histologically by three pathologists and rechecked by the author and Dr. Studdiford for this report. These patients were operated upon between the years 1932 and 1942 by members of the gynecological staff at Bellevue Hospital. Twenty-five such patients were found.

CLASSIFICATION

These 25 patients were divided into two main categories: 13 with tumors histologically classified as of "low grade malignancy" and 12 of "high grade malignancy". Grossly, the tumors of "low grade malignancy" showed perforation of the capsule with or without superficial implants on the peritoneum. Microscopically, there were well-formed papillary processes with no evidence of invasion into the central core of stromal tissue. The cells covering the papillary projections showed fairly advanced differentiation, hyperchromatism, pleomorphism, mitotic figures and some piling up. The stroma varied from a dense fibrous connective tissue, sometimes hyalinized, to a delicate embryonal type of connective tissue resembling Wharton's jelly. At times psammoma bodies were present. In some cases, it was difficult to make up one's mind as to whether there were any definite malignant changes present, but with the tumor breaking through the capsule or peritoneal implants, they were considered to be of low grade malignancy. Furthermore, in examining the implants, they were found to be superficial structures with no invasion into the tissue to which they had become parasitic.

The tumors of "high grade malignancy" showed epithelial changes which were definitely and unmistakably malignant with invasion into the cores of the papillary processes and varying degrees of anaplasia. Examination of the implants also showed deep invasion into the tissue to which the papillary growths had become attached.

In this series of cases, the over-all mortality rate was 56.0% and almost three times higher in the group of "high grade malignancy" (83.3%) than in the "low grade malignancy" (30.8%).

	No. of Patients	Mortality Rate
Low Grade Malignancy	13	4* (30.8%)
High Grade Malignancy	12	10 (83.3%)
Total	25	14 (56.0%)

*2 of the deaths not directly due to the original tumor.
1 patient died from intestinal obstruction 4 years after treatment.
Other patient died from meningitis secondary to an ulcer over sacrum 7 years after treatment.

AGE

Practically all investigators[3,4,6,7,9,10,12] have found that about 70% of their patients with carcinoma of

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the ovary fall in the age group of 40-60 years. This is thus definitely a disease of the middle age. However, there are wide extremes, the youngest being 13 years[6] and the oldest, 86 years[9]. In this series, limited to papillary adenocarcinoma, the youngest was 24 years and the oldest 63 years, with the average age 44.6 years. Interestingly, it was found that in the low grade malignant group 46.2% were under 40 years and that in the highly malignant, only 1 patient (8.5%) was under 40 years of age. Also, of those who died, only 2 were under 40. Thus, it seems that those with papillary adenocarcinoma of the ovary and who are over 40 years of age have a less favorable prognosis since in these cases the tumors tend to be more malignant.

	Age Extremes	Average Age	Total No. of Deaths	Died Under 40	Died Over 40
Low Grade Malignancy	24-60 yrs.	41.5 yrs.	4	1 (25%)	3 (75%)
High Grade Malignancy	39-63 yrs.	47.8 yrs.	10	1 (10%)	9 (90%)
Total	24-63 yrs.	44.6 yrs.	14	2 (14.3%)	12 (85.7%)

RACE

In this series papillary adenocarcinoma of the ovary was found to be more prevalent among the whites, especially those tumors of high malignancy. It was also found that the mortality rate was higher among the whites. The population on our wards was usually fairly evenly divided between white and colored patients.

	Total No. of Pts.	White	Mortality Rate	Colored	Mortality Rate
Low Grade Malignancy	13	9 (69.2%)	3 (33.3%)	4 (30.8%)	1 (25%)
High Grade Malignancy	12	12 (100%)	10 (83.3%)	0	0
Total	25	21 (84%)	13 (61.9%)	4 (16%)	1 (25%)

MARITAL STATUS AND FERTILITY

In this series 92% of the patients were married. It was found that 17.6% of the patients were sterile, or 41.2% if we include those patients who became pregnant but aborted and never bore a live term infant. These figures compare favorably with those of other authors[3,7,9,17].

	Married	Parous	Gravid but Never Parous	Sterile	Total Infertility
Low Grade Malignancy	12 (92.3%)	8	1	3	4
High Grade Malignancy	11 (91.7%)	5*	3	0	3
Total	23 (92%)	13	4	3 (17.6%)	7 (41.2%)

*Parity of 3 additional patients not determined.

SIGNS AND SYMPTOMS

Crossen[14] aptly summarized the early signs and symptoms when he called carcinoma of the ovary "silent". All investigators are in agreement that one of the greatest contributing causes to the lethal nature of this disease is the fact that there are *no* definite early signs or symptoms which would bring the patient to the physician. When definite signs or symptoms are present, they are indicative generally of a far advanced stage of the tumor. In practically every report[3,7,10,12] in which this phase of the disease is reported there are two symptoms which bring the patient to the doctor: abdominal pain and swelling of the abdomen—but both occurring in those cases where the disease has been present for some time. The other symptoms are gastro-intestinal disturbances menstrual disturbances, backache, bowel or urinary disturbances. In the majority of the cases the patients have no menstrual disturbances and the few changes which may arise are variable and not characteristic.

The duration of symptoms from the time they were first noticed by the patients to the time they entered the hospital, varied from 3 weeks to 2 years. There was no correlation between the duration and the histological classification. However, as can be seen below, in the low grade malignant group, if the patient sought medical attention within a year after the onset of the symptoms, a favorable prognosis was enhanced. In the highly malignant group, it made little difference what the duration was.

Duration of Symptoms	Low Grade Malignancy		High Grade Malignancy	
	No. Patients	Mortality	No. Patients	Mortality
3 weeks			1	1 (100%)
2 months	1	0	2	1*(50%)
3 months	2	1†(50%)	2	1 (50%)
6 months	1	0		
10 months	1	0		
1 year	3	2‡(67%)	2	2 (100%)
2 years	1	1 (100%)	1	1 (100%)

*Other patient could not be traced.
†Death not due to original malignancy.
‡One death not due to original malignancy.

HISTOGENESIS

The theories advanced as to the etiology of papillary adenocarcinoma of the ovary are several[15,16]. They are: primary from the germinal epithelium covering the ovary, and secondary, from an endometriosis of the ovary or from a previous benign cystadenoma. It is quite possible that there is no one etiology but that malignant changes may arise from any of the above. If this be so, then the prevention of these malignant changes would be of primary importance. In those cases where the tumor is primary, nothing can be done except to make an early diagnosis However, Lynch[3] suggests that pelvic inflammation may be causative agents in the formation of these primary tumors and, therefore, early extirpation of inflammatory tissue may be good prophylactic treatment. Three of the patients in this series gave a positive history of pelvic inflammatory disease. Early surgical removal, also, of endometrial cysts of the ovary (one of the patients in this series had a laparotomy for this condition 7 years before her second operation for papillary adenocarcinoma of the ovary) or benign cystadenomata may prevent future malignant changes in the ovary.

PATHOLOGY

Most agree that the majority of these tumors are bilateral. Thus, even though grossly the tumor may be in only one ovary, it is best to remove the other. In this series, where the tumor was unilateral, the prognosis was much more favorable. The cystic tumors were found to be more common and, like Pemberton[9], it was felt that they offer the more favorable prognosis, except in the highly malignant cases where the difference is not too remarkable. The presence or absence of peritoneal implants also seriously affect the prognosis.

The most important pathological consideration is the fact that often these tumors can be very difficult to diagnose microscopically[12,13,15,16]. The problem does not lie in those tumors which are definitely malignant but in those which are "seemingly" benign or "possibly" malignant. As Taylor and Greeley[13] aptly put it: "The morphological transition from the benign to the malignant takes place almost imperceptibly. No pathologist has had the experience to place the line of division exactly." In addition, serial sections are not done routinely, and without them it is impossible to be certain that a tumor is definitely a benign papillary cystadenoma and that small areas of early carcinomatous changes are not present somewhere in the tumor. Not infrequently some tumors which are considered to be malignant are actually benign and *vice versa*. This difference of opinion as to which tumor is benign and which is malignant is in Taylor's and Greeley's opinion: "probably the most important variable governing the reported figures on cures of ovarian cancer"[13].

	Bilateral		Unilateral		Cystic		Solid		Peritoneal Implants	
	No.	Died	No.	Died	No.	Died	No.	Died	No.	Died
Low Grade Malignancy	11	4	2	0	9	2	4	2	4	3
High Grade Malignancy	11	10	1	0	9	7	3	3	8	8
Totals	22	14	3	0	18	9	7	5	12	11

TREATMENT

All agree that the primary treatment of papillary adenocarcinoma of the ovary is early and complete extirpation of the tumor tissue, including a complete hysterectomy (whenever possible) and bilateral salpingo-oophorectomy. This radical surgery is necessary because of the extensive lymph drainage from the ovary and the tendency for these tumors to

metastasize to tubes and uterus, and for these tumors to be bilateral.

The role of radiation therapy in papillary adenocarcinoma of the ovary is a moot question in answer to which there are many and conflicting opinions. Unfortunately, these opinions in many instances are based upon personal "feelings" instead of impersonal facts. Anspach[1] "feels" that it is "a worth while adjuvant to operation but that its true influence is hard to gauge." Lynch[3] also believed that X-ray therapy was an adjuvant to surgery, but that the "profession erroneously credits too many cures of ovarian cancer to the roentgen ray." Meigs[8] states that "X-ray treatment is unquestionably of value in prolonging life, but up to the present time it alone has not cured." Walter, Bachman and Harris[11] summarize that post-operative radiation is least beneficial in Stage 1 (where the tumor is limited to the ovaries) and that the most effective treatment in these cases is surgery. However, they are of the opinion that X-ray therapy is most beneficial in inoperable cases. Marchetti[12] feels that X-ray therapy did prolong the life of his patients and that it has a palliative effect, but in far advanced cases "it has little if any beneficial remedial effect". Taylor and Greeley[13] summed up their results with: "It does not appear that radiation has materially affected the average duration of life in cases of ovarian cancer."

It can be seen from the above that, in the minds of those who treat carcinoma of the ovary, the therapeutic value of radiation therapy is uncertain. However, since the disease is so lethal even with surgery, possibly X-ray therapy will do no harm. Not until a large controlled series is obtained in which tumors of equal malignancy, extension, and duration are compared, will the answer to this question be found. However, it is generally felt[9,11,17] that in the far advanced cases X-ray therapy, besides alleviating symptoms and possibly prolonging life, may make a non-operable tumor operable. There is a patient in this series in whom an exploratory laparotomy was performed and the tumor (of low grade malignancy) found to be inoperable. Post-operative X-ray was given and after 4 years and 16 paracenteses, the tumor became amenable to surgery. A bilateral salpingo-oophorectomy and supravaginal hysterectomy were performed. The patient live 3 years after this and died from meningitis secondary to an ulcer in her back (the effects of X-ray).

In this series, it was found that X-ray therapy had little appreciable affect on the end results.

The amount of X-ray and the methods in giving it also seem to have differences of opinion. Most men treat with protracted fractional doses. However, Taylor and Greeley[13] and Jacobs and Stenstrom[4] also used large single doses. Taylor and Greeley[13] used 670r in one dose to each of 4 fields. Jacobs and Stenstrom[4] used a single dose of 140% S. E. D. (1 skin erythema dose for a large field is approximately 700r) to each of 4 fields in 3 weeks time with maximum number of courses to any one patient limited to four. In the fractional dose treatment, the fields varied from 4-10, and the total dosage per field varied from 1500r to 2500r, given 200r-400r at a time[7,11,13].

	Unilateral Salpingo-oophorectomy				Bilateral Salpingo-oophorectomy				Supravag. Hyst. Bilat. S-O.				Complete Hyst. Bilat. S-O.				Exploratory and Biopsy			
	No X-ray	Died	X-ray	Died	No X-ray	Died	X-ray	Died	No X-ray	Died	X-ray	Died	No X-ray	Died	X-ray	Died	No X-ray	Died	X-ray	Died
Low Grade Malignancy	1	0	0	0	1	0	2	1	3	1*	4	2†	1	0	1	0	0	0	0	0
High Grade Malignancy	0	0	2	2	0	0	3	3	0	0	4	2	0	0	0	0	2	2	1	1

*Death not related to malignancy.
†One death not related to malignancy.

The physical factors also varied in the following manner:

KV: 180 — 250
Filter: 0.5 — 2.0mm Copper with or without aluminum which varied from 1 — 4 mm.

Burnam[6] also added 3 — 4mm. of sponged rubber.
Target Skin Distance: 50 — 80 cm.

The physical factors used in the treatment of our patients were as follows:

KV — 200 MA-20
Cu. filter — 0.5mm. — 2.0mm TSD-50cm.

Al filter — 1.0mm—	5 Fields: Ant. right and left, post-right and left, and lumbar. Occ. up to 8 fields are used.
HVL-0.9mm. (Measure taken in air)	

The treatment was given in fractional doses, 150-200r to 2 portals daily. Portals varied in size from 10cm. x 15cm. to 20cm. x 20cm., depending upon the size of the patient. The total dose to each field depended upon the tolerance of the skin and was usually 1800r ± in air.

In addition to the above, other adjunctive methods have been suggested in the treatment of carcinoma of the ovary. May[7] reports that Heyman and Schroeder and also Murphy do not remove the uterus, using it for the insertion of radium, whereas Seitz removes the uterus but uses vaginal radium. The average dosage of radium used is 3000-5000 mgm. hours. Most men believe that since the rays of radium are short, its use in carcinoma of the ovary is limited, for often implants of the tumor are beyond the reach of the radium rays. Meigs[8] and Pemberton[9] believe that the peritoneoscope may be of value in making early diagnosis of carcinoma of the ovary because of its easy application in exploring the abdomen under direct visualization. Pemberton[9] believes the omentum should be removed, along with the uterus and adnexa because of the fact that so often it is the site of later metastases.

RESULTS

The results of 5 year survivals from carcinoma of the overy cited by various authors vary from 9.5% to 50% (see table below). Such a wide variation makes these figures of little significance, for in themselves they imply the existence of variables which make the comparison of such figures misleading.

AUTHORS		5-YEAR SURVIVAL RATE
Anspach[1]	1934	29.1%
Norris[2]	1934	50.0
Lynch[3]	1936	35.5
Burnam[6]	1938	9.5
May[7]	1939	31.0
Pemberton[9]	1940	32.0
Jones[10]	1941	23.3
Marchetti[12]	1941	13.0
Taylor & Greeley[13]	1942	15.2

The results of patients with papillary adenocarcinoma of the ovary studied in this series were:

Low Grade Malignancy	*High Grade Malignancy*
Dead — 4 (30.8)	Dead — 10 (83.3%)
Still alive at the end of:	Still alive at the end of:
1 year-2	3 years — 1
1 1/2 years-1	Unable to locate — 1
2 years-1	
3 years-1	
4 years-2 (one last seen in 1939 and the other in 1942)	
5 years-1	
10 years-1	

PROGNOSIS

As things stand today, the prognosis for papillary adenocarcinoma of the ovary is anything but good. The principal factors influencing the prognosis were found by Taylor and Greeley[13] to be four in number. The first is the gross extent of the disease which they believe to be the "most important single consideration", for in the ⅓ of their patients in whom all visible tumor tissue was removed, ½ of them survived 5 years; whereas, of the ⅔ of the patients in whom some carcinomatous tissue was left behind, only 2% survived—regardless of the type of treatment. The second is the type of ovarian malignancy—the papillary adenocarcinoma having the lowest survival rate: 14.3%. The third is the histological appearance of the tumor—those of low malignancy having the better prognosis. The fourth is the use of post-operative X-ray, about which Taylor and Greeley are not definitely certain.

Although in agreement with Taylor and Greeley, it was felt from this study that the histological appearance of the tumor was the important single factor. This is in concurrence with Lynch[3], though Walter *et al*[11] were in agreement with Taylor and Greeley. It was also felt that the extent of the growth was dependent upon the degree of the malignancy. Thus, a highly malignant tumor which is fast growing is apt to be far advanced upon the patient's first visit to her physician, whereas the low grade malignancies are generally slow growing and more usually restricted to the ovaries. There was a patient in this series with low grade malignancy for which just the one ovary which was involved had been resected. Seven years later, she had the very same type of tumor recur in the same ovary. This time a bilateral salpingo-oophorectomy was performed and X-ray given. Another patient with low grade malignancy had peritoneal implants. She had

a bilateral salpingo-oophorectomy and complete hysterectomy without any post-operative X-ray. Today both patients are alive without any evidence of recurrence present.

Many agree with Lynch[3] and Pemberton[9] that cures should be based on the survival for 10 years instead of 5 years. Lynch believes that even the far advanced cases often lived 5 years or more regardless of the type of treatment, harboring the cancer, and, in his opinion, these certainly should not be considered as "cures". The one case of recurrence in this series of a low grade malignancy after 7 years is added support to this opinion.

CONCLUSIONS

Papillary adenocarcinoma is the most common malignant tumor of the ovary. Early signs and symptoms are so insidious that the presence of the tumor is not appreciated until the disease usually is well advanced. In the highly malignant group, the duration of the symptoms are of no significance; whereas in the low grade malignant group a better prognosis may be expected if the duration is under one year.

Prognosis depends upon the duration and extent of the tumor, the microscopic degree of malignancy and the extent of the surgery. Patients past the age of 40 years should have pelvic examinations performed at least twice annually, for, since symptoms of carcinoma of the ovary are "silent", this is the only positive method by which early cases may be picked up.

The treatment of choice is surgery: complete hysterectomy and bilateral salpingo-oophorectomy. Post-operative X-ray therapy may be given, but its value at the present time is not very definite.

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Some recent additions to the Library of the Medical College of Virginia, Richmond, available to our readers under usual library rules are:

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THE ANEMIA PROBLEM IN EVERYDAY PRACTICE*

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Anemia is a problem with which every practitioner of medicine is frequently confronted. In each instance, this condition merits proper evaluation, careful inquiry to determine the etiology and a therapeutic approach compatible with the present knowledge of the subject. Unfortunately, few conditions are dealt with in such an empirical or—one might even say—hit or miss manner. Consequently, unnecessary expense, a confused clinical picture, and occasionally prolonged incapacity may be the patient's lot. This discussion will consider briefly the common types of anemia and their therapy.

The first is the iron deficiency anemias. This is distinctly more common in the female than in the male except perhaps in the years before adolescence. The red blood cells may be reduced in numbers or approach normal limits but the reduction of hemoglobin is marked in comparison and reflects the iron deficiency. The color index is quite low, varying from 0.4 to 0.8. Morphologically the cells are small and pale with a mean corpuscular volume of less than 80 cubic microns and a corresponding reduction in the mean corpuscular hemoglobin concentration. The bone marrow reveals a normoblastic erythropoiesis. Events which occasion an increased demand for iron are blood loss, growth and pregnancy[1]. Precipitating factors are prolonged bleeding from any source, such as uterine, menstrual, or lesions of the intestinal tract of which ulcers, varices and hemorrhoids are common examples. In pregnancy the demand of the growing fetus for iron may be responsible for the production of an iron deficiency anemia in the mother In children from the fourth month, at which time the supply of iron in the liver is depleted and the diet must be relied upon for this element, until the fourth year it is not unusual for a deficiency to develop[2]. Ordinarily, though adults may partake of an inadequate diet or be incapable of proper absorption of iron, it is unlikely that these factors in the absence of actual blood loss are responsible for anemia of the iron deficiency type[1,3]. This is probably accounted for by the fact that the body has very little ability to excrete iron once it is stored.

Clinically, the anemia of chronic hemorrhage typifies this group. Recurrent small hemorrhages may be well tolerated. On the other hand, frequent hemorrhages so over tax erythropoiesis that adequate regeneration is impossible and severe anemia ensues. Then the characteristic symptoms of weakness, dyspnea, fatigue, and fainting are experienced. The blood picture is characteristic of this group, with microcytosis, hypochromia, reduced corpuscular hemoglobin concentration and normoblastic erythropoiesis in the bone marrow. The urgent feature in these cases is the determination of the bleeding point and its prompt control.

Idiopathic hypochromic anemia presents a picture which is morphologically identical with that of chronic hemorrhagic anemia. This condition is almost exclusively confined to women of the childbearing age. Attention has been called to certain constitutional features found in these individuals[4], namely, light colored eyes, prematurely gray hair, and wide costal angle which resemble those of pernicious anemia patients. Features which identify this anemia are gastric achlorhydria, glossitis, dysphagia (Plummer-Vinson syndrome), tongue atrophy, spoon nails and paresthesias, without evidence of cord changes, and occasionally there may be splenomegaly[11]. While the etiology is controversial, Fowler and Barer[3] carried out iron balance studies in these patients and found that the menstrual blood loss produced a need for iron in excess of the amount which could be supplied by diet. They also believe that evidence supports the contention that in presence of achlorhydria there is deficient iron absorption. Thus, menstrual blood loss and achlorhydria in their opinion are the chief causes.

Iron deficiency anemias of pregnancy are well known. These are usually hypochromic microcytic in type. In establishing the diagnosis, however, it is well to exclude the physiological anemia of the last trimester particularly. In this latter instance, the plasma volume may be increased as much as 23% with a corresponding relative decrease in cells.

*Read before the Junior Journal Club, Lynchburg, Va., June 26, 1947.

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The hemoglobin, however, is not reduced below 10 grams per 100 cc. and the cells are of normal size, whereas, in true iron deficiency anemia of pregnancy the hemoglobin is less than 10 grams per 100 cc. and the cells are microcytic. Achlorhydria frequently accompanies this anemia even though it may be only temporary. This may make differentiation from idiopathic hypochromic anemia difficult, since many such cases are first discovered during pregnancy[5]. Nevertheless, there are patients who present this picture in the absence of achlorhydria and represent a true iron deficiency anemia.

Adequate treatment of this group of anemias is accomplished by the administration of large doses of iron salts. The ferrous salt, usually the sulphate in doses ranging from one to two grams daily[1], is suggested. Ferrous gluconate may be preferable where there is gastric irritation. The oral administration will produce the desired reticulocyte response and return of the blood to normal levels. Moore[6] has shown that massive doses of iron parenterally are almost completely utilized; however, the severe reactions which follow this method make its employment unsafe. The small doses which can be safely tolerated parenterally, are not as effective as large doses administered orally. It has been noted[7] that patients with acid in the stomach respond more quickly to small doses of iron than those with achlorhydria. In both instances restoration is fairly well accomplished in six to eight weeks. The addition of hydrochloric acid does not materially improve iron absorption. Continuous treatment with iron may be required to prevent recurrences of anemia where there is achlorhydria. Many combinations of iron, liver, copper, vitamin B, and, of late, pteroyl glutamic (folic) acid, have been in vogue. The evidence at hand does not justify their use, or the additional cost of such preparations. There is not a complete uniformity of opinion regarding the value of liver in the treatment of hypochromic microcytic anemia. The presence of a substance other than the intrinsic factor, which is of value in iron deficiency anemia, has its adherents[11]. On the other hand, any improvement resulting from liver therapy in iron deficiency anemia is attributed to the content of iron in the liver by others. Liver has not produced the desired response in iron deficiency anemias according to some investigators[3]. Certainly liver is not a prerequisite for these anemias. It has been demonstrated that hypochromic anemia in patients with deficiency of vitamin B complex responds satisfactorily to the administration of iron alone. The addition of the vitamin B complex did not improve the response. Neither the absorption nor the utilization of iron is impaired by vitamin B deficiency. The experimentally produced hypochromic microcytic anemia, resistant to iron, in animals on a diet deficient in pyridoxine is not known to occur in man[8]. The addition of copper to iron has not improved the response of the blood and, conversely, low copper intake has not prevented response from iron[7]. Spies reports a failure of response of the blood in iron deficiency anemia to pteroyl glutamic (folic) acid. Finally, at this point it might also be stressed that iron is of value only in iron deficiency anemia.

Since these anemias are usually characterized by prolonged blood loss which has permitted the organism to adopt itself to this state in most instances, there is no great need for transfusions. Severe degrees of anemia will respond to iron alone.

The diet in these individuals should contain meat, liver, eggs, fruits and vegetables rich in iron. The average diet is estimated to supply from 12-15 mgms. of iron daily. An inquiry into the dietary habits of these individuals is necessary in the treatment of the anemia.

A second group of anemias is that which responds to the administration of liver extract, and is best called the macrocytic anemias. Morphologically their cells are macrocytic and show a considerable variation in size and shape. They reveal a comparatively high content of hemoglobin as evidenced by a thick well filled appearance and lack of central pallor. The color index is well above one as a rule. The mean corpuscular volume is increased but varies with the severity of the anemia. The white count tends to be low normal or reduced. The neutrophiles are also reduced and there are observed large multi-segmented cells with six or more lobules. These cells are the macropolycytes of Cook, found when there is a deficiency of the liver principle. Bone marrow studies reveal the characteristic megaloblastic erythropoiesis.

Spies[10], in his studies of macrocytic anemias, employs the following classification: There are two groups, those due to dietary failure such as nutritional macrocytic anemia, and those which follow primary disorders of the gastro-intestinal tract as Addisonian pernicious anemia and sprue. Those cases of macrocytic anemia which reveal an achylia

following histamine injection are classified as Addisonian pernicious anemia. Instances of macrocytic anemia having acid and steatorrhea are considered sprue. Macrocytic anemia occurring in persons with a dietary deficiency but without achylia and steatorrhea are called nutritional macrocytic anemia. Admittedly this group is not too clear cut. In many instances the same patient at different times may suggest different syndromes.

The classic example of macrocytic anemia is Addisonian pernicious anemia. This is a disease of middle and old age, with its greatest incidence between forty and seventy. Some authors state that the sexes are equally susceptible while others believe that it occurs with greater frequency in males. It is primarily a disease of the temperate zone. It is uncommon in the Jewish race and rare but probably not as much so as formerly thought in the Negro. Failure of maturation of erythrocytes or an arrest of maturation appears to be the mechanism responsible for this condition. The erythrocyte maturation factor or anti-anemic principle results from interaction of the extrinsic (dietary) factor and the intrinsic (stomach) factor. After its formation in the stomach, this anti-anemic principle is stored in the liver and to some extent in the kidneys and other tissues. There is evidence that achylia by producing mucosal atrophy is a contributing factor. The peripheral blood picture of anemia of the macrocytic type, with extreme variation in the size and shape, nucleated red cells some of which are megaloblasts, the high color index, and the presence of neutrophilic macropolycytes, is characteristic. The bone marrow findings are those of megaloblastic erythropoiesis. The finding of an achylia after histamine injection completes the diagnosis. Clinically, the features are weakness, glossitis, paresthesias and gastro-intestinal disturbances. Unfortunately these findings indicate a fairly advanced stage of the disease. Minot[11] feels that the condition is most often not diagnosed until it has been present for a year or more. He stresses early diagnosis to prevent neurological complications. This implies attention to the history, giving particular thought to patients with chronic indigestion, loose stools, atrophy or soreness of the tongue, slight macrocytosis, the use of the tuning fork to detect disturbed vibratory sense and study of the smear. These are simple but invaluable aids to diagnosis.

Macrocytic or pernicious anemia of pregnancy is infrequent. It is more common in multiparous women under thirty-five years. Its occurrence is confined to the latter part, particularly the third trimester, of pregnancy. There is resemblance to Addisonian pernicious anemia in the peripheral blood picture in some cases. However, cases occur in which the anemia may be normocytic or even microcytic[12]. In all instances the marrow shows megaloblastic erythropoiesis and sternal puncture may be required to complete the diagnosis. Glossitis, neurological manifestations and achylia may not be observed. The response to liver extract also distinguishes this condition from Addisonian pernicious anemia. It is less responsive, requires larger doses and the reticulocyte response is not as marked. Very often blood transfusions are necessary to supplement the liver. Fever often is present and the picture may simulate an infection. Fortunately there is permanent recovery in about five months after pregnancy, following which there is no further need for therapy. The child is not affected in any way.

Watson and Castle[13] studied four cases of macrocytic anemia of pregnancy in whom there was dietary deficiency, especially meat, presence of hydrochloric acid, absence of neural manifestations, and lingual atrophy. The macrocytosis, poikilocytosis, and anisocytosis were less marked. These cases did not respond to the usual doses of injectable liver extract, but did respond to oral liver extract (Valentine). Injections of B vitamins, biotin, pyridoxine, and L. casei factor were without avail; whether larger doses of pteroyl glutamic acid now available would help is not known. This suggests the presence of an agent other than the anti-anemic factor in liver, which was more abundant in the oral liver extract than in the injectable form. This factor they called the "Wills' factor" in honor of Dr. Lucy Wills, who made similar observations on patients with nutritional macrocytic anemia in India. This poses the question, are there cases of macrocytic anemia of pregnancy deficient in the anti-anemic liver principle like Addisonian pernicious anemia, and others which are deficient in the Wills' factor? These latter cases are no doubt rare in this country.

Of the macrocytic anemias, sprue is at times more difficult to differentiate from Addisonian pernicious anemia. While it is primarily found in tropical and subtropical climates, its occurrence in this country is well documented. It is believed

that there is little difference between tropical and non-tropical sprue[10]. This latter condition is also called "idiopathic steatorrhea". This disorder is due to a deficiency of the extrinsic (dietary) factor. Adequate protein which contains this extrinsic factor is lacking in the diet. In typical cases the blood reveals a macrocytic anemia, high color index, low reticulocyte count, and megaloblastic bone marrow. Fully developed there is wasting, glossitis, diarrhea with bulky fatty stools which may be white, gray or dark colored. Hypochlorhydria is present in 70 per cent and achlorhydria in 30 per cent of cases[14]. Wintrobe[4] states that the well developed case may be preceded by months or years of chronic indigestion, constipation with occasional loose stools, sensitive tongue, and depression. With this in mind, one might detect unsuspected cases.

The occurrence of macrocytic anemia in cases of chronic liver disease has been repeatedly observed. The frequency with which it occurs is variable, and it seems to be chiefly found in cases of cirrhosis of the liver. The cause is not completely established. Interference with the storage of, or depletion of, the supply of the maturation factor by the disturbed liver function has not seemed to explain the anemia in all cases. While the anemia has many similarities to pernicious anemia, the predominant symptoms are those referable to the disordered liver function.

Liver has been the sheet anchor of therapy in macrocytic anemias since its brilliant results in the treatment of pernicious anemia became established. Symptomatically the patient recovers, neurological manifestations are improved and the blood regenerates and may be maintained at normal values. The response in pernicious anemia of pregnancy has been less dramatic. Larger doses of liver are required, even transfusions may be necessary and the reticulocyte response is less marked though prognosis has been materially improved in a condition that was once frequently fatal. Sprue, likewise, has been controlled by liver extract and these individuals rendered free of the gastro-intestinal symptoms as well as anemia. Parenteral liver therapy has also resulted in improvement in the macrocytic anemia of liver disease. The schedule of administration of parenteral liver extract for pernicious anemia in relapse is applicable in the case of other macrocytic anemias. This suggests[4] 15 units parenterally daily until the maximum reticulocyte response has been attained. This usually requires in the neighborhood of seven days. If the response is satisfactory, then the dose may be reduced to 15 or more units weekly. An effective maintenance dose varies with the individual case. The use of transfusions even in the severely anemic case of pernicious anemia patient is no longer considered necessary.

The recent employment of pteroyl glutamic (folic) acid in the treatment of macrocytic anemias has given new impetus to the study of these conditions. It has produced remissions in nutritional macrocytic anemia, Addisonian pernicious anemia, macrocytic anemia of pregnancy, sprue, one case of macrocytic anemia with carcinoma of the stomach and three cases of indeterminate origin[9]. In patients with sprue the hematological and clinical results have been prompt and impressive[14]. Until adequate time elapses its value in pernicious anemia must await. This substance appears to be different from the hematopoietic principle of liver extract as evidenced by the relatively large amounts of folic acid necessary to produce a remission in pernicious anemia in contrast to the liver extract in which the quantity of active ingredient is smaller. Reports of the failure of pteroyl glutamic (folic) acid to prevent neurologic relapse in pernicious anemia[15] are occurring in the literature. At this time it would appear unwise to abandon the routine use of liver extract in the treatment of pernicious anemia. In instances where the individual is sensitive to liver extract, employment of pteroyl glutamic (folic) acid would seem justified.

There is another, and perhaps the largest, group of anemias which respond poorly, if any, to liver or iron therapy. For the most part these anemias are characterized by erythrocytes of essentially normal size and hemoglobin content. For this reason they may be referred to as the normocytic anemias. In this group may be considered anemia following acute blood loss, physiologic anemia of pregnancy, the anemia of infection, aplastic anemia and the anemia of hypothyroidism.

In acute blood loss the resultant clinical picture varies with the quantity of blood loss, and the suddenness with which it is lost. The symptoms may be mild or produce the picture of shock. At first there is little change in the value of hemoglobin or the red cell count due to compensatory vascular changes. An elevation of the platelet

count very soon occurs and is in a matter of a few hours followed by an increase in the white count. Anemia becomes evident after fluids are introduced to increase the blood volume, and increases for a time. Treatment should be aimed at control of hemorrhage, restoring the blood volume and combating any shock. Blood transfusions are preferable to any other agent for restoring blood volume. Normally, where there are adequate stores of iron in the body, there is little indication for its use. Restoration usually occurs in a month. Liver extract has no value in the treatment.

Physiologic anemia of pregnancy has been previously mentioned. This actually represents a hydremia with plasma increase up to 23%[12]. While there is some cellular increase, it is over-shadowed by the increase in the fluid volume. The cells reveal essentially normal characteristics. This process becomes apparent in the third or fourth month, is considerably increased by the seventh month, and by the sixth post-partum month has disappeared. Hemoglobin values do not fall below 10 grams nor the erythrocytes below 3.36 million. Iron and liver therapy are of no avail.

Anemia is often observed in infections which are of a subacute or chronic nature. Most clinicians have been impressed with the anemia in the various forms of urinary tract infection and in nephritis, arthritis, pulmonary disease, brucellosis and endocarditis due to streptococcus viridans infection. The degree of anemia in such cases may vary. Often it is over-shadowed by the disease process. There are instances where the anemia may be marked and difficult of explanation until only after very careful studies have been carried out. This is frequently the case in chronic pyelonephritis which may go unrecognized. The anemia is usually of the normocytic type. The refractoriness of such anemias to usual forms of therapy is a common experience. The mechanism of such anemias is difficult of explanation. It has been observed that there is a disturbed iron metabolism in such cases. The iron plasma level drops shortly after the infection develops and cannot be raised by therapy. It is only after the infection has cleared and the anemia corrected that it returns to normal[4]. The satisfactory treatment of such anemia necessitates the control of the infection. Transfusions serve as a palliative measure during the active stage. Neither liver, iron, or combination of the two, act with any degree of success.

The aplastic anemias constitute a severe group of blood dyscrasias whose refractoriness to all forms of therapy is notable. Actually there are two classes of this disorder—the primary or idiopathic aplastic anemia and the secondary aplastic anemia. Clinically they are manifested by severe anemia, leukopenia and thrombocytopenia.

Primary aplastic anemia is primarily a disease of young adults. It occurs usually before the age of thirty-five. Its onset may go entirely unrecognized, and its course may be rapid or comparatively slow. Weakness, pallor and fatigability are prominent features. There is usually temperature, which may be irregular, or marked, in instances of rapid progression. Soon bleeding becomes evident, especially as the anemia becomes pronounced. This may come from any orifice, and is attributed to the thrombocytopenia. The presence of splenomegaly should cast doubt upon the diagnosis of aplastic anemia. Ordinarily the total red blood count is very low. The cells are usually normocytic, though they may be macrocytic and there is an absence or very marked decrease in reticulocytes and other evidences of young forms. The leucopenia may be pronounced and the predominant cell is the lymphocyte. Platelets are reduced and occasionally no platelets are found. The bone marrow is most often aplastic in type, consisting of mature erythrocytes, while lymphocytes comprise the majority or all of the nucleated cells. There are cases in which the bone marrow reveals varying degrees of hyperplasia, involving cells of both the erythrocytic and myeloid series. Such instances may be confusing, but the immaturity of the cells probably does not approach that of a leukemia.

The secondary type of aplastic anemia is seen as a result of intoxication from heavy metals such as arsenic, and gold, exposure to benzol and benzene derivaties, and from radiation or radio-active substances. In these instances rather profound anemia with varying degrees of leukopenia and thrombocytopenia are found according to the individual substances to which exposed. The chief agent for combating these anemias is blood transfusion. The primary form is highly fatal, but occasional recoveries reported necessitate the continuance of this procedure for a considerable time. In the secondary type removal from or discon-

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tinuance of the use of the offending substance is mandatory. In instances where arsenic, gold and even mercury are responsible agents, in addition to transfusions it would appear wise to employ BAL (British Anti-Lewisite). Recent experiences with this substance have been encouraging in treatment of blood dyscrasias from these metals[16,17].

Anemia may be associated with hypothyroidism. Such an anemia may not be severe, but may present a problem in management. Morphologically the picture is either normocytic or macrocytic. The high incidence of achlorhydria associated with myxedema may contribute to iron deficiency and a hypochromic anemia. Pernicious anemia and hypothyroidism may be associated, and thyroid extract is required before a remission of the pernicious anemia can be effected. Total thyroidectomy may produce a macrocytic anemia, unresponsive to liver, but improving with thyroid medication.

SUMMARY

An attempt has been made to discuss briefly anemias likely to be encountered in every-day practice. For this discussion they have been divided into those that respond to iron therapy, those responding to liver therapy, and those responding poorly or not at all to liver or iron. Morphologically these may be classed as hypochromic microcytic, macrocytic and normocytic, respectively. The characteristics and clinical types of each group have been mentioned, along with the indicated therapy. It is believed that the necessity for careful study and evaluation of all cases of anemia is evident. The employment of such a procedure routinely will make the management of this problem equally gratifying to the patient and physician. It cannot be too strongly emphasized that every anemia should be adequately explained before therapy is undertaken.

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CANCER FOLLOWING BURN SCARS

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The eponym bearing the name, "Marjolin's ulcer," was derived from the lucid description by a French surgeon, Jean-Nicolas Marjolin, of the carcinomatous ulcers which originate on degenerate scars. He published his classical description of the ulcer in 1828.

A burn is an injury inflicted on the body by a degree of heat higher than is compatible with healthy action on the part affected. A burn can be caused by any body that radiates much heat. The potentiality of a scar to undergo malignant degeneration and histological variety of epithelioma resulting are due to the extent of surface area involved and to the depth of the burn, which in turn are related to certain factors, namely: (1) the degree of temperature; (2) the nature of the exciting agent; (3) its capacity for heat absorption; (4) the duration of contact; (5) the susceptibility of the part acted upon; and (6) the condition of the patient. Scalds are produced by action of boiling liquid, superheated steam, and molten lead, or other metals. The difference in the effects of burns and scalds is comparable to the distinction between roasting and boiling.

The content of this paper considers only cancer following thermal and chemical burns, excluding those cancers developing in skin which has been over irradiated by X-rays or radium.

One can make certain generalizations concerning scar cancers:

(1) Acute wound cancer developing within a year of the date of the injury occurs in instances of quite superficial burns with little surface involvement. This condition is rather rare.

(2) All basal cell cancers of scars occur in instances wherein the burn was sufficiently superficial to spare the hair follicles and sweat glands which remain as points of origin.

(3) Dense hard scars usually result in squamous carcinomata.

The age of the scar is more important than the age of the individual, because this variety of cancer can occur in young people if the scar has been existent for a long time, such as from infancy or childhood. A patient burned at the age of 6 years may develop a squamous cell carcinoma 17 years later. The average time interval between burn and onset of cancer:

Acute wound cancer—3½—7 months.
Chronic scar cancer—30 years.

In acute wound cancer, the carcinomata make their recognizable appearance before healing is complete. Healing in these cases takes place by the natural processes of epithelialization from the margins of the wounds and from residual hair follicles and sweat glands when present. Infection by pyogenic organisms, a constant concomitant of ungrafted burns, delays the healing process and contributes greatly to the production of dense, fibrotic avascular scar tissue. Anemia is a factor which interferes with wound healing of burns. Scars of slow formation are much more liable to undergo carcinomatous degeneration than scars quickly formed as the latter are pliable and soft. The location of the burn sometimes impedes healing, particularly when the axilla, groin and middle of the back are involved.

Acute cancers in burns seem to be infrequent. When present, they occur in older people with atrophic and keratotic skin. In such cases the thermal trauma is a probable exciting factor to a skin which is already more susceptible to carcinogenic influences.

Goldblatt classifies burns into two classes according to their end-results: those that will heal with scar formation, and those that will heal without scar formation. The scar forming burn is the only one of significant import in the study of scar cancer. The tight, thick, dense scar is the one most liable to carcinomatous degeneration.

The scar tissue resulting from a burn undergoes greater contraction than new tissue formed in other circumstances. The tendency of such a scar to contraction continues for many weeks after the completion of cicatrization.

The diseases of the burn cicatrix are fissures ulceration, irritability, itching, neuralgia, hypertrophy, keloid formation, epitheliomatous and calcareous degeneration.

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Scar tissue is poorly vascularized because dense fibrosis obliterates many of the blood vessels; the resultant imperfect nutrition of the scar is responsible for the ease with which ulceration occurs. The dry, thin, and delicate epithelium covering the scar is easily destroyed by trauma, to which it is frequently subjected because of the elevation of the scar. In case of adherent scars of axilla, extremities and mid back, the epithelium is abraded by relatively slight injuries. Each successive abrasion, ulceration, or fissure heals with increased difficulty, the quality of the regenerated epithelium is progressively inferior, and finally the persistent stimulation to the marginal epithelium for repeated growth and repair with constant frustration, may lead to a loss of tissue restraint and eventually cancer.

The carcinomatous degeneration in burn scars is often confined to the margins which begin to crenate and show a warty appearance. The majority of these neoplasms are the ulcerative, flat, indurated infiltrative variety which not only invade the surrounding scar but also muscles, tendons and bones. Deep invasion is late. All bulky scar cancers are malodorous due to saprophytic infection.

The basal cell epitheliomata arising in superficial scars are small at first and differ in no way from the usual picture of rodent ulcer. Even when cancer following burn scars is of long duration and infiltrates deeply, the regional lymph nodes are remarkable free from metastases. It is thought that the bed of scar tissue delays metastases. Metastasis is by the lymphatics, and the growing edge of the carcinoma must penetrate the barrier of fibrosis presented by the scar before the lymphatic vessels are accessible. The lymphatics in the immediate neighborhood of the scar are largely obliterated by the cicatrix. However, once scar cancer gets beyond the limits of the enveloping scar it will spread as rapidly as any other epidermoid carcinoma.

The presence of metastases in the regional lymph nodes is the most important prognostic factor; it is of far greater import than the duration of the cancer. The prognosis is modified by the location of the tumor, its fixity, its proximity to blood vessels, the degree of suppuration, and the radiosensitivity. The age of the patient has an influence on the outcome; older people are less tolerant of radical surgical measures.

The ultimate prognosis for acute wound cancers is better than for chronic scar cancers on account of the superficial character of the scar, the small size of this type of cancer and the predominance of basal cell types.

The cardinal points to be emphasized about the prevention of scar cancer in burns are: (1) The prevention of the burn; (2) the local treatment of the burn, particularly the successful management of infections; (3) promotion of rapid epithelization; (4) early skin grafting of the burned area; and (5) radical excision of the scar at the first indication of degenerative changes.

In burns of severe degrees, early skin grafting is the most efficient preventive measure for thickened scars, contractural deformities, and cosmetic disfigurations. When skin grafting is delayed, there is formed an unhealthy anemic granulation tissue, with a scar tissue base. Chronic granulation tissue is the parent of scar tissue. A cancer seldom if ever arises in a scar healed by primary intention; primary wound healing is impossible in burns, but one can approach this condition by early skin grafting. It is very important to employ skin grafting in children, not only for cosmetic betterment and to prevent contractural deformities, but because scars in children are particularly exuberant and hypertrophic and therefore are more prone to degenerate later in life. The scar does not grow with the child; consequently, with age it is subjected to increased tension. The existence of the scar from childhood to old age results in prolonged exposure of the scar to carcinogenic influences.

The thin ribbon Ollier-Thiersch grafts should not be used unless the extent of the burn precludes the employment of the whole thickness grafts. The Thiersch grafts do not stimulate normal skin; none of the skin accessories, such as hair follicles, sweat and oil glands are present, in consequence of which the grafted area is dry, without oil, and subject to the same degeneration as scar tissue. Cancer has been known to originate on Thiersch-grafted regions.

Every effort should be made to obtain pliable scars over joints, because the flexion and extension of these members tend to provoke ulcers and fissures in tight adherent scars. Therefore, when scar tissue is beginning to form and the burned surface overlies a joint, it is desirable to place the limb in such a position that the motion and integrity of the joint shall not be interferred with by

the contraction of the resulting scar. This may be maintained by the application of plaster-of-Paris splints, adhesive plaster, elastic bands and extension appliances.

A scar can be softened and made more elastic by continuous application of moist warm boric acid solution packs for a long time concurrently with the exercise of traction. Adherent scars should be aided by massage and hydrotherapeutic measures.

If the scarred skin is tense, poorly nourished, and inclined to ulcerate at the slightest provocation, improvement may be obtained by incisions made at right angles to the direction in which relaxation of the skin is desired. Such incisions, if multiple, should be made parallel to one another and should run in the direction of the chief blood vessels, in order to spare the vascular supply of the scarred area.

All large scars are menaces. All sources of irritation should be avoided. The scar should be treated with a bland oil at times to prevent excessive keratin accumulation. If the scar becomes intractably pruritic, fissured, or ulcerated, or begins to enlarge at a late stage in its history, it is a better plan to excise such a scar before an actual epithelioma develops. Plastic treatment of a scar should seldom be started until the scar has ceased contracting. This is an end-point which is difficult to determine and frequently is not reached until a year or more has elapsed since the occurrence of the injury.

The defect following excision of the scar must be filled with a skin graft. For the hand the abdominal bridge graft or the pocket graft of the thigh is suitable. Skin flaps give better results than interpolated grafts of the Wolfe-Krause type, because they have better blood supply, are less inclined to shrink, and attach themselves more readily to wounds having a scarred base. On the head and extremities, the pedicled flaps obtained from a neighboring site are desirable, if the skin there is available and uninjured by the burn. Otherwise, the flap may be transferred as intermittent "jumps" with the forearm as temporary host to the graft.

All scar cancers should receive irradiation therapy. Some of the epitheliomata may be healed by irradiation alone. If the lesion is small and irradiation is not available, the actual cautery or endothermy may suffice. It is quite important to excise all ulcers in scars at an early stage before they become malignant. Curettage of ulcers in scars is inadvisable, for it may hasten the dissemination of an unsuspected carcinoma. Local excision of scar cancer without pre-operative irradiation is unsuccessful and dangerous. If the lesions are radioresistant, surgical intervention becomes necessary and the magnitude of the procedure will depend upon the location and extent of the lesion.

Indications for amputation for scar cancer are: (1) hemorrhage caused by erosion of a large vessel; (2) when the cancer has invaded so deeply and become so adherent that excision is an impossiblity; (3) when the interior of a large articulation, such as a knee or ankle, is extensively laid open; (4) when large areas of bone are exposed, a condition which results in necrosis; (5) when a profound and uncontrollable suppuration of the wound is complicated by fever and a dangerous systemic toxemia of the patient in spite of antibiotics and sulfonamides; (6) when the functional result after a presumptive cure would be unsatisfactory, the limb becoming an encumbrance to the possessor.

SUMMARY

Carcinoma developing in burn scars are two types: The acute wound cancer occurring in quite superficial burns in older people with atrophic, keratotic skin and chronic scar cancer. Basal cell cancers developing in burn scars usually occur when the burn is superficial, sparing hair follicles and sweat glands. The potentiality of a scar to undergo malignant degeneration and the histological variety of epithelioma resulting are due to the extent of the surface area involved and to the depth of the burn.

The age of the scar is more important than the age of the individual. Cancer of burn scars may occur in younger persons if the cicatrix exists from infancy or childhood.

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Medical Arts Building.

XUM

AN EVALUATION OF THE ANNUAL SEROLOGIC TEST PERFORMANCE STUDIES CONDUCTED BY THE VIRGINIA STATE HEALTH DEPARTMENT FROM 1940 THROUGH 1946*

E. M. HOLMES, JR., M.D.,†
Richmond, Virginia.

During the year 1937 the first survey to obtain information relative to the availability and type of procedures employed for the diagnosis of syphilis was conducted by questionnaire in fifty laboratories throughout the State of Virginia. Laboratories from which this information was obtained included those conducted privately by physicians, technician serologists, hospitals, and by State and local health departments.

Since considerable dependence is placed upon the result of serodiagnostic tests for syphilis, it was felt that some method should be made available whereby these laboratories could determine the efficiency with which they were performing these examinations.

Such a procedure was available to State laboratories but had not been recommended for general application to all laboratories. The pioneer work in developing a method for the evaluation of serodiagnostic tests for syphilis was undertaken in 1934 by a committee whose membership consisted of two clinical pathologists appointed by the American Society of Clinical Pathologists, two syphilologists, and two officers of the United States Public Health Service. Subsequently this committee recommended that the Surgeon General of the United States Public Health Service invite the health officers of the forty-eight States and the District of Columbia to participate in an evaluation study. The purpose of this study was to determine the efficiency of the performance of the various State Health Department laboratories. At the conclusion of this study, the committee made several recommendations. Among others, they advised that advantage be taken of this system of comparative examination and that an annual invitation be extended by the United States Public Health Service to all State laboratories.

In 1938 a meeting of laboratory directors and serologists was held in Hot Springs, Arkansas, under the auspices of the *Committee on Evaluation of Serodiagnostic Tests for Syphilis* and the United States Public Health Service. The purpose of the meeting was to consider means and methods to improve and make more available serodiagnostic tests for syphilis. A recommendation was presented and adopted at this meeting, suggesting that State Health Department laboratories serve in the capacity of control laboratories in evaluating the efficiency of serologic testing as performed by laboratories within the State, providing the State laboratory had in previous studies attained a satisfactory standard of efficiency.

In March, 1940, an invitation was extended by the Virginia State Health Department to all of the laboratories in the State to participate in a serologic evaluation study. In this invitation attention was called to the recent passage by the General Assembly of the Marriage Examination Law, which statute requires all persons desiring to obtain a marriage license first to have performed on themselves a serologic test. Under this new legislation, the examination of blood specimens is limited to those laboratories which are approved for this purpose by the State Health Commissioner. Naturally before such approval can be granted, the laboratory must have attained a satisfactory standard of efficiency in the performance of such serodiagnostic tests for syphilis as are performed by that laboratory. Following the precedent set by other states having marriage examination laws, it was decided by the Syphilis Committee of the State Medical Society and the staff of the State Health Department that the standard of efficiency would be determined by a serologic evaluation study similar to those conducted by the United States Public Health Service.

It was decided that for the purpose of these annual serodiagnostic evaluation studies, 55 specimens of blood would be obtained from presumably non-syphilitic donors. Internes, resident physicians, and nurses would serve as donors for this group. One hundred and eleven specimens of blood were

*Read before the National Association of American Medical Technologists.

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Assistant Director Richmond City Health Department, June 1, 1947.

obtained from syphilitic donors. The syphilitic donors were selected on a percentage basis from cases in the various diagnostic stages of the disease, so many primary, secondary, latent, central nervous system cases, etc. In evaluating the efficiency with which the participating laboratories performed the examination, only specimens actually examined and reported were used in the percentage rating calculations. Complement fixation tests reported as anticomplementary were not included. In estimating the specificity ratings from non-syphilitic donors, full demerits were given for positive reports and half demerits for doubtful reports. The determination of sensitivity ratings on 111 specimens of blood from syphilitic donors were calculated on the basis of crediting one point for each positive and one-half point for each doubtful report. These standards used in the 1940 study have been followed in each succeeding study.

Thirty laboratories accepted the invitation to participate in the first State evaluation study. Two additional laboratories were included, namely, the U. S. Public Health Service Research Laboratory at Staten Island, New York, and the central Richmond laboratory of the Virginia Department of Health, both of which served in the capacity of control laboratories.

At that time a total of approximately 390,000 serologic examinations were performed annually by sixty-seven laboratories in Virginia (including the Richmond laboratory conducted by the State Department of Health). Thirty of the laboratories included in this study performed 200,000 of these examinations, and in addition 171,000 were performed by the State Department of Health. Therefore, the scope of this study included those laboratories performing 95 per cent of the annual number of serodiagnostic tests for syphilis made in the State.

In the first study with 30 laboratories participating, only 9 achieved satisfactory ratings in both sensitivity and specificity in one or more test procedures. Eighteen laboratories had satisfactory specificity and unsatisfactory sensitivity on one or more test procedures. Four laboratories had satisfactory ratings in sensitivity but failed in specificity. Five laboratories had unsatisfactory ratings in both sensitivity and specificity. These results were discouraging to the Syphilis Committee and the staff of the State Health Department. Thus it was concluded by these interested persons that evaluation studies are of value as an incentive for private laboratories to improve their standards and also to practicing physicians and the public at large. Further, it was agreed that these studies should be conducted annually and that the State Health Department should assist in the training of serologists and render consultation service in serology.

In contrast with the 1940 study, laboratories participating in the 1946 evaluation achieved a much higher ratio of success. Out of 69 laboratories participating (evaluated on 113 serodiagnostic test procedures) 49 achieved satisfactory ratings in specificity and sensitivity, while 20 of the laboratories failed because they were either too low on specificity or sensitivity or both. In the group that failed, 7 were low on specificity as contrasted to the higher percentage in the 1940 study, at which time only 9 laboratories achieved full approval under the terms of the Marriage Act.

In the 1946 study the following tests were submitted: Kahn Standard; Kahn Presumptive; Kline Diagnostic; Eagle Flocculation; Laughlen Flocculation; Mazzini Flocculation; Boerner-Lukens Microscopic; Kolmer Complement Fixation; Hinton and Eagle Modified. Out of seven laboratories submitting Laughlen, all but two had difficulty with their antigen, and, in consequence, failed because of low specificity or sensitivity.

While the results of the 1946 study were gratifying, it is believed that the need for continued State evaluation studies is increasing, and will continue to increase until better facilities for the standardization of antigens and technique are accomplished. It is to be hoped that with cardiolipin coming into more general use much of the confusion existing in the serodiagnosis of syphilis will be corrected.

Today more than ever in the history of serodiagnosis for syphilis, the need for standardization is important. In consideration of the widespread use of serologic screening procedures, premarital examinations, prenatal examinations, food handlers' examinations, and the like, care in the performance of serologic tests becomes a matter of grave importance. All too often a person is stigmatized with a diagnosis of latent syphilis based upon repeated positive serologic tests performed in a laboratory with low or variable specificity. In such instances the patient has to take long and expensive courses of treatment or be hospitalized for rapid treatment

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and followed up for a minimum of five years.

I know of no other disease on which physicians depend upon the laboratory for aid to the extent that they do in the diagnosis, management and follow-up of syphilis. Therefore, it behooves all serologists and technicians to exert the greatest of care in adhering to the author-serologist prescribed technique and to see that his reagents are as near perfect as possible.

One laboratory in the last study achieved a specificity rating of 33. That laboratory was reporting a false positive test for syphilis on 67 out of every 100 bloods submitted for examination. Such a laboratory is a source of danger not only to the individual whose sera is submitted for examination but to the community that is served by the laboratory. The laboratory in question has completely revised its serologic section as the result of consultation with the senior serologist of the State Health Department and is attempting to bring its standards up to the nationally recommended level. Based on experience with this laboratory and others that have failed during the 6 years since the first study, it is urged that your association within itself request adequate laboratory facilities, including supplies and equipment, and insist upon proper working conditions. All too often a well trained technician fails in evaluation studies because of handicaps existing in the physical layout of the laboratory.

In conclusion, if all serologists will follow the author-serology prescribed technique, exert due care in the selection of reagents and equipment, and insist upon adequate laboratory space, the level of serologic test performances in this State could be improved still further.

Leading Cause of Death Among Doctors.

Fewer physicians died in 1947 than in 1946, on the basis of the obituaries published in *The Journal of the American Medical Association* during the year. According to the January 24 issue of *The Journal,* physician deaths numbered 3,040 in 1947 as compared to 3,358 in 1946 and 2,962 in 1945. During 1947, however, the American Medical Directory Report Service received reports of deaths of 3,568 physicians in the United States and possessions, or 528 more than those published in *The Journal.*

The average age of the 3,040 whose obituaries were published was 66.7 years as compared to 66.1 in 1946 and 65.3 in 1945. Two physicians lived to be more than 100 years old.

Diseases of the heart continued as the leading cause of death among physicians, with a total of 1,406 recorded. Cerebral hemorrhage, thrombosis and embolism took the lives of 384 physicians. Arteriosclerosis caused 252 deaths, an increase of 67 over 1946. Hypertension, hypertensive cardiovascular disease and cardiorenal disease contributed to 162 deaths, an increase of 71 over 1946. Diseases of the respiratory system caused 168 deaths, and 319 others were attributed to cancer and tumors. There were 49 deaths from diseases of the nervous system, 132 from diseases of the digestive system. Chronic nephritis or uremia was the commonest cause of death among diseases of the genito-urinary system, with 109 recorded.

The suicide rate decreased: 40 were recorded, as compared to 55 during 1946. There were five homicides, all due to shooting. Of the 159 accidental deaths, 68 involved automobiles. Five were collisions with trains, one a collision with a streetcar. Thirteen died in airplane crashes; nine were drowned, one when his fishing boat went over a dam. Six died of burns. One physician was killed when his tractor toppled down an embankment, and two died in the Wynecoff Hotel fire in Atlanta, Ga.

PUBLIC HEALTH

L. J. ROPER, M.D.,
State Health Commissioner of Virginia.

The report of the Bureau of Communicable Diseases of the State Department of Health for February 1948 as compared with the same month in 1947, and for the period of January through February 1948 compared with the same period in 1947, is as follows:

	Feb. 1948	Feb. 1947	Jan.-Feb. 1948	Jan.-Feb. 1947
Typhoid and Paratyphoid fever	9	7	19	10
Diarrhea and Dysentery	353	150	597	301
Measles	414	894	1,169	1,390
Scarlet fever	81	143	228	306
Diphtheria	12	27	49	64
Poliomyelitis	2	5	3	9
Meningitis	9	11	17	21
Undulant fever	7	2	14	2
Rocky Mountain spotted fever	0	1	0	1
Tularemia	1	8	18	24

PREVALENCE AND PREVENTION OF ROCKY MOUNTAIN SPOTTED FEVER

There were only 67 cases of Rocky Mountain spotted fever reported in Virginia during 1947, therefore the individual possibility of infection by this disease is less than 1 in each 44,000 population. However, it must be remembered that risks to the rural and suburban population groups are greater than to urban groups. Similarly, those who live in areas where the disease is most prevalent and whose occupations expose them more or less regularly to tick bite have a greater chance of contacting Rocky Mountain spotted fever.

It is significant to note that of the 259 cases which were reported throughout the State during the last three years, only 33, or 12.7 per cent, were in the area of the State west of the Blue Ridge Mountains. Eighteen of the 35 counties in this area reported no cases during this period.

GENERAL PREVENTION. The risk of infection to most individuals is slight and specific prevention is not indicated. In this connection, the policy of Virginia state and local health departments is against mass immunization. For most people the following recommendations will suffice for adequate protection;

1. Keep away from tick infested areas.
2. Clear weeds and low shrubbery adjacent to pathways regularly used.
3. Examine body for ticks, when possible exposure has occurred, paying particular attention to skin folds and hairy regions. Those constantly exposed should be examined at least once a day.
4. Remove carefully attached ticks, followed by cauterization with nitric acid, phenol or silver nitrate, of the bitten area.
5. During the tick season keep dogs and cats outside the home.

SPECIFIC PREVENTION. The state and local health departments maintain supplies of both the egg embryo and tick tissue vaccine, made available without charge by the U. S. Public Health Service. Upon application, these may be distributed in single and multiple immunization units to the medical profession of Virginia. The supplies are intended for those living or working in tick infested areas where Rocky Mountain spotted fever has occurred and when general measures of control are to be regarded as insufficient.

The egg embryo vaccine is considered preferable to the tick tissue product on the basis of local and general reaction, which is somewhat greater with the latter vaccine. However, when history of egg protein sensitivity is given the tick tissue vaccine is indicated. Allergic reaction may occur with either product, although this is seldom of serious consequence.

Immunization should be given in the late winter or early spring, and for optimal protection the full course of three injections is recommended each year. Dosage may be adjusted to age, and injections are advised at intervals of seven to ten days. Allergic history should be checked for each patient.

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BIBOLIOTHECA OBSTETRICA

CHAMBERLEN, DR. PETER (1601-1683) To the Honorable House of Commons assembled in Parliament the humble petition of Peter Chamberlen, Doctor in Physick. Broadside, folio, (London), printed in the year 1646. The only recorded copy is the Thomason copy (British Museum) lacking the imprint.

Dr. Peter Chamberlen was the third generation of the famous Chamberlen family of forceps fame. The obstetrical forceps remained a secret in the family for five generations. William Chamberlen, the emigrant, came to England in 1569. Like many immigrants in this country, they were prosperous and prolific. Dr. Peter had 13 children by his first wife and five by his second wife. He had 45 grandchildren. Those who had to do with the forceps were: Peter the elder and Peter the younger, sons of William; Dr. Peter the son of Peter the younger; Hugh, Senior, Paul and John, the sons of Dr. Peter; Hugh, junior, the son of Hugh, senior; and Dr. Walker, a grandson of Dr. Peter Chamberlen. According to Aveling (The Chamberlens and the Midwifery Forceps, London, 1882), Peter the elder was the inventer of the forceps. It was in Dr. Peter's house, Woodham Mortimer Hall, in a secret cavity under the floor of a closet that the original forceps were discovered in 1818. Paul was "famous" for his anodyne necklace. Hugh, senior, tried to sell the forceps to Mauriceau and translated Mauriceau's book into English, and Dr. Walker is said to have invented the English lock. All were famous men-midwives and all except John numbered royalty among their patients.

From a librarian's point of view, none was noteworthy.

Dr. Peter was educated at Merchant Taylor's School. In 1615 he was admitted to Emmanuel College, Cambridge. From there he went to Heidelberg and to Padua, where he graduated in Medicine in 1619. He was incorporated on that degree at Oxford in 1620 and at Cambridge in 1621. His attempt to incorporate the midwives provoked a bitter controversy, and in defense he wrote "A Voice in Rhama: Or, The Crie of Women and Children", a grandiloquent autobiography. He was known among his detractors as a pamphlet monger, as he was constantly engaged in some kind of controversy, from public baths to the reconciliation of the churches, and the sprinkling of infants.

BOOK ANNOUNCEMENTS

Advances in Military Medicine. Science in World War II. Office of Scientific Research and Development. Made by American Investigators Working Under the Sponsorship of The Committee on Medical Research. Edited by E. C. Andrus, D. W. Bronk, G. A. Carden, Jr., C. S. Keefer, J. S. Lockwood, J. T. Wearn, M. C. Winternitz. An Atlantic Monthly Press Book. Little, Brown and Company Boston, 1948. Volume I—liv-472 pages. Volume II — xvii - pages 473-900. Illustrated. Cloth. Price of two volumes $12.50.

Tuberculosis. A Discussion of Phthisiogenesis, Immunology, Pathologic Physiology, Diagnosis and Treatment. By FRANCIS MARION POTTENGER, A.M., M.D., LL.D., F.A.C.P., Emeritus Professor of Medicine, University of Southern California, the School of Medicine; Medical Director, the Pottenger Sanatorium and Clinic for Diseases of the Chest, Monrovia, California. St. Louis, The C. V. Mosby Company, 1948. 597 pages. Illustrated. Cloth. Price $12.00.

Illustrative Electrocardiography. By JULIUS BURSTEIN, A. B., M.D., Visiting Electrocardiographer and Chief of the Cardiac Clinic, Morrisania City Hospital, New York; etc. And NATHAN BLOOM, M.D., F.A.C.P., Associate Professor of Medicine and Chief of the Department of Electrocardiography, Medical College of Virginia, Richmond, Virginia. Third Edition. D. Appleton-Century Company, New York, 1948. xvi-309 pages. Illustrated. Cloth. Price $6.00.

EDITORIAL

Public Demand for Service at Night Must Be Met

THE American Medical Association calls on county medical societies to meet the public demand for emergency medical service at night.

"From many sections of the United States," says an editorial in a recent (March 6) issue of *The Journal of The American Medical Association,* "complaints have come lately that persons who have called physicians late at night have been unable to secure attendance from either those whom they considered their family physicians or from specialists or, indeed, from any physician."

The American Medical Association says that large county medical societies or urban groups should maintain a physicians' telephone exchange which would take the responsibility for locating physicians if response is not made to the ringing of the telephone in the home or in the office.

The solution is simple and practical, requiring only a minimum of community organization. A number of county medical societies already maintain a physicians' telephone exchange where doctors' calls may be received and doctors located if their office of home telephones do not respond. Such an exchange can be utilized as at night or on holidays, simply by furnishing the exchange with a list of physicians who are able and willing to make night calls. Such physicians would probably include the younger general practitioners, newcomers to the community, and others in general practice. If such a roster were available, and its availability widely publicized, night calls for medical service would soon gravitate to this center and the patient would be assured the services of a physician.

Under such a system the necessity for calling many doctors would be eliminated. Two calls at most would be necessary. Where there is no physicians' telephone service, it might be possible to have the hospitals cooperate by handling such night calls.

The Medical Society of the District of Columbia and the Milwaukee County Medical Society have found such a plan practical, as have a number of other societies.

By this simple and practical expedient, which is doubtless in effect in modified form in a number of communities, the sick can be served and the medical profession can redeem its pledge of unselfish public service.

It is highly important that where such arrangements exist they be brought to the attention of the lay people in the community through appropriate public channels, not once but repeatedly, to keep the shifting populations well informed.

Few problems in the field of medical service have aroused so much public discussion. Whether resentment against physicians is justified or not, it does harm. The solution for this problem is so eminently simple and would reflect so favorably upon physician-patient relationships that medical societies everywhere are urged to give it serious consideration immediately.

GEORGE F. LULL, M. D.,
Secretary and General Manager,
American Medical Association.

The Cost of Federalized Medicine

LAST month in our editorial "Wholesale and Retail Medicine" we made a slight error when we stated that the cost of Federalized medicine was estimated to cost 300 billion dollars. We confess that such tremendous figures as billions bewilder us. The figure that we had in mind was three billion dollars a year. That was the

figure, if we remember correctly, that was used in the hearings on the Murray-Wagner-Dingell bill. We find that three billion is an understatement. In a recent study "Compulsory Health Insurance", Elizabeth Webb Wilson breaks down the probable costs under the Murray-Wagner-Dingell bill. Dr. Wilson served as head computer in ballistics unit of Ordnance Department, U. S. Army, in World War II, and was associate actuarial mathematician Social Security Board 1943-44. She is qualified to talk in terms of billions. She estimates that the general practitioner-specialist benefit would cost $12.00 for each person insured. Two-thirds of this would go to the general practitioner and the rest to the specialist. This would give the doctors an income only about equal to what they get at present, and for which they would have to do more work than they ever had to do before during peacetime. The hospital benefit would cost about $12.00 per capita. Laboratory and X-ray benefit would be at least $2.50 per capita even for a limited benefit. Appliances would cost $3.25 and drugs might easily reach $9.00 or possibly $10.00 per capita. She uses the lower figure as a rough estimate. The irreducible minimum of medical benefits provided in the bill would total $3.4 billion without allowance for administration. If complete coverage of laboratory appliances and drug expense be added, which can be done at the discretion of the Surgeon General of the Public Health Service, it will amount to almost $2 billion more. Then there are dental and nursing benefits. Using the schedule now in use by the Veterans Administration, complete maintenance care would cost $29.00 and the average cost of complete initial care would be somewhat between $55 and $70.00. If graduate nurses be paid at a rate of $2,530 a year and practical nurses at $1,600, the nurses' benefit would cost $1.25 per capita. The cash benefits which would partially indemnify the wage loss for the first six months of illness, would be at least 1¼ per cent or possibly 1½ per cent of the covered payroll from the very beginning. The over-all cost has been estimated by experts to be from "more than $11½ billion" to "more than $14½ billion".

Mortality Rates for 1946

ACCORDING to the figures of the National Office of Vital Statistics, the year 1946 made a new low record, 10.0 per 1,000 population as compared with 10.6 for 1945. The estimated death rate for the first ten months of 1947 is 10.1. These rates are for continental United States and exclude overseas armed forces. The rates are all the more remarkable in that a large segment of the healthiest part of the population, i.e., young adults who have passed a general physical examination, were eliminated from the calculations.

A break down of the causes of death shows some shifting in the leading causes. For the first time pneumonia and influenza (combined) has not been among the top five causes of death. For the third consecutive year, deaths from diseases of the heart have increased. In 1946, 429,230, or 30.8 per cent of all deaths, died of this cause. Cancer also showed an increase, killing 182,005 in 1946, or 13 per cent of the total number of deaths. Fatalities from other chronic diseases decreased. There were 125,646 deaths from intracranial lesions of vascular origin as compared with 129,144 in 1945; 81,701 deaths from nephritis as compared with 88,078 in 1945; and 34,731 deaths from diabetes mellitus as compared with 35,160 in 1945. The total deaths from pneumonia and influenza dropped 8.9 per cent and those from tuberculosis 3.8 per cent. While the number of births increased approximately 20 per cent in 1946, maternal deaths decreased from 5,668 in 1945 to 5,153 in 1946, thus establishing a new all-time low in maternal mortality.

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Rural Health Problems in Illinois

ILLINOIS has its rural health problems as well as Virginia. They too need doctors, nurses, hospitals, and adequate public health measures in the rural communities. In Illinois they have the conviction that only country bred boys and girls will stay on the farm after they have had a medical training, and they have set about solving their problems in a realistic manner. The Illinois Agricultural Association and the Illinois State Medical Society have jointly raised a fund of $100,000 for financing medical education for farm boys. This fund is to be administered by a "Farmer and Doctor Loan Fund Board". Students seeking loans under the plan must conform to certain requirements. Each must agree to return to a town of less than 5000 population (the smaller the better) in his home county and practice general medicine, not a specialty. The student must be a native of the county from which he applies, unable to finance his training, and be free from debt. He must be recommended by both the local medical society and the farm bureau. His training must be taken in an approved medical school. There are certain other provisions to protect the fund in case of death or if the student abandons his medical training.

In order to set forth the problems of rural health, the Illinois State Medical Society has prepared an attractive pamphlet entitled "Doctors and Horses" to be distributed from the Society's exhibit at agricultural fairs. In the foreword this pamphlet states that the horse and the doctor are fast disappearing from American farm communities, but unlike the horse the doctor can not be replaced by gasoline powered monsters that the farmer uses today. To meet the farm community health needs there are four requirements: 1. plenty of properly trained physicians; 2. plenty of nurses; 3. plenty of hospital beds; 4. adequate public health measures.

Under 1, the pamphlet emphasizes that more country boys must study medicine and do it with the intention of returning to rural areas to practice. Only the brightest, strongest and best, mentally, morally and physically, can win through, but if such a boy has the courage and determination and lacks the means, ways can be found to finance his medical education.

Under 2, it is stated that more nurses are needed than doctors, because nursing inevitably loses a large proportion of its trained personnel in marriage. Like the rural doctor, the rural nurse must come from the farm community. The advantages of nursing as a livelihood over other occupations are explained.

3. The pamphlet emphasizes the fact that initiative in the hospital program must come from the community, and moreover the community must maintain the hospital even if outside funds are available to build it. The hospital should be large enough to be efficient. A small town could no more support an adequate hospital than a 20-acre farm could support a combine. By careful planning, an efficient hospital could serve a number of communities adequately.

4. Modern life, even in rural areas, has become complicated and health protection is needed. Supervision is needed over water and food supply, and against the transmission of disease by insects and to immunize babies against whooping cough, diphtheria, and smallpox, and to vaccinate against typhoid, dysentery, etc., as well as to test and immunize cattle against tuberculosis, brucellosis, etc.,—in fact to do all the things which have doubled the life expectancy of Americans in the last century.

Finally, as a means of bringing all this about the community should form a Health Council. The job is too big for any one group. It needs the help of the doctors, dentists, and nurses, the ministers and priests, the lawyers and bankers and business men, the leading clubs and lodges, the teachers, the women's groups, civic and school, and the official agents. With such a Council, the community can get anything that it wants.

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SOCIETIES

The Wise County Medical Society

Met at Hotel Norton, February 25th and enjoyed a fine banquet as guests of the resident staff, Dr. C. L. Harshbarger and his associates, of the Norton General Hospital.

A resolution was passed authorizing the Board of Censors to investigate and act in the matter of illegal practitioners, one especially at Appalachia.

The following officers were elected for the ensuing year:

Dr. C. H. Henderson, President; Drs. D. C. Keister, J. D. Culbertson, and L. E. Ball, Vice Presidents; and Dr. T. J. Tudor, Secretary and Treasurer, re-elected.

Dr. A. H. Bond is to replace Dr. S. H. Rivers on Board of Censors.

The concluding feature was "To Hear Again" a U. S. Army Sound film, which held the interest of the group for 37 minutes.

The next meeting of the Society will be held on April 14th at Appalachia where they will be guests of Dr. W. B. Barton and his medical staff of the Stonega Coke and Coal Company.

T. J. TUDOR, *Secretary-Treasurer*

Alexandria Medical Society.

At the regular meeting of this Society on March 11th, the subject for the program was Red Cross Blood Bank, and the speakers were Rear Admiral George B. Dowling, MC, USN, (ret), Deputy Adminstrator of the National Blood Program of the American Red Cross, and Dr. Bernard McD. Krug, Medical Director and Administrator of Health Services, Eastern Area Headquarters of the American Red Cross.

Dr. Harrison Picot and Dr. George Speck are president and secretary, respectively, of this Society.

Lynchburg Academy of Medicine.

At the regular monthly meeting of the Academy, held March 8th, with Dr. H. L. Riley presiding, Dr. John T. T. Hundley presented a paper on "Medical Public Relations, the Problem and a Suggested Program".

Roanoke Academy of Medicine.

At the March meeting of the Academy, the following program was presented: Cryptorchism by Dr. Lloyd G. Lewis, Associate Professor of Urology at Georgetown University; and The Diagnosis and Management of Appendicitis in Children by Dr. R. Franklin Carter, Clinical Professor of Surgery at the New York Post-Graduate Medical School, Columbia University.

Virginia Peninsula Academy of Medicine.

Guest speaker at the meeting of the Academy on March 15 was Dr. William Roberts Sandusky, Assistant Professor of Surgery and Gynecology at the University of Virginia, who came upon the invitation of Dr. Edward V. Siegel of Newport News. Dr. Sandusky's subject was "Polyps of the Large Intestine". There was an attendance of seventy-one. Dr. Paul Hogg of Newport News presided and Dr. Chester D. Bradley, also of Newport News, was at the secretary's desk.

NEWS

Richmond Meeting, Medical Society of Virginia.

In the March Monthly, appeared dates and names of the Local Committee for the Richmond meeting of the Medical Society of Virginia. Richmond has ample hotel accommodations to care for visiting doctors and their wives but, to insure a reservation at the hotel of your choice, it would be well to make them now. Names of hotels with their rates are given below:

HOTEL JOHN MARSHALL
Singles—$5.00, $5.50, $6.50 and $7.50
Doubles—$8.00, $8.50, $10.00 and $15.00

HOTEL RICHMOND
Singles—$3.75, $4.25, $4.75 and $5.25
Doubles—$6.00, $6.50, $7.00 and $7.50
Twins—$7.00 to $9.50.

HOTEL WILLIAM BYRD
Singles—$3.50, $4.00, $4.50, $5.00, $5.50, $6.00 and $7.00.
Doubles—$6.00, $6.50 and $7.50
Twins—$7.00, $7.50, $8.00 and $9.00

HOTEL MURPHY
Singles—$3.50, $4.00 and $4.50
Doubles—$5.50, $6.00 and $7.00
Twins—$6.00 and $7.00

HOTEL JEFFERSON
Singles—$3.50, $4.00, $5.00 and $6.00

Doubles—$5.50, $6.00, $7.00, $8.00, $9.00 and $10.00

HOTEL RUEGER

Singles—$3.00 to $4.00

Doubles—$4.50 to $6.50

State Department of Health.

RHEUMATIC FEVER PROGRAM

The Crippled Children's Bureau was made a separate bureau of the State Department of Health as of November 1, 1947. The Rheumatic Fever Program remains under this Bureau.

Dr. Carolyn McCue, instructor in Pediatrics at the Medical College of Virginia, has been appointed pediatrician in charge of the State Health Department's clinic located in Richmond.

Dr. Reno Porter, consulting cardiologist for the Veteran's Hospital and Director of Cardio-vascular Research at the Medical College of Virginia, is consulting cardiologist for the State Health Department's Rheumatic Fever Program.

Dr. McLemore Birdsong and Dr. Margaret Glendy serve as pediatricians in the State Health Department's Rheumatic Fever clinics in Harrisonburg and Roanoke, respectively. Dr. Birdsong, a graduate of the University of Virginia and at present Associate Professor of Pediatrics at the University, received his training in the Boston Children's and Infant's Hospital and the Good Samaritan Hospital in Boston. Dr. Glendy, also a graduate of the University of Virginia, received her training in the Massachusetts General Hospital and in the Children's Heart Clinic there under Dr. Paul White.

Dr. Hubert T. Dougan is pediatrician for the State Health Department's Rheumatic Fever Clinic, which is located in Portsmouth. He is a graduate of the Medical College of Virginia and served his pediatric residency at the same medical center and at the Children's Hospital, Cincinnati. He also served two years in the Medical College of Virginia Rheumatic Fever Clinic.

HEALTH DISTRICT NEWS

Appomattox was added to Campbell and Charlotte counties on March 1, forming the Appomattox-Campbell-Charlotte Health District.

The cities of Waynesboro and Staunton joined with Augusta county to form the Augusta-Staunton-Waynesboro Health District, effective March 1, 1948.

News from the University of Virginia School of Medicine.

On February 20th, as guest speaker on the Postgraduate Program for House Officers, Dr. Reginald H. Smithwick of Harvard University spoke on the subject "Surgery of the Autonomic Nervous System".

Dr. Charles L. Gemmill, Professor of Pharmacology, gave a lecture on "General Principles and Purposes of Tracer Studies" in the course in Medical Aspects of Radioactivity given at the Naval Hospital, Bethesda, Maryland on February 23.

At the meeting of the North Carolina Conference on Rural Health, held in Chapel Hill, N. C. on February 28th, Dr. H. B. Mulholland, Professor of Practice of Medicine, spoke on the subject "National Plan for Rural Health".

Dr. E. P. Lehman, Professor of Surgery, presented a paper entitled "Diagnosis of Infection Following Chemo-therapy and Anti-biotics" before the Chicago Clinical Conference on March 2.

On the recommendation of the Committee on Growth of the National Research Council, the grant of $9,500 from the American Cancer Society to Dr. C. L. Gemmill, Professor of Pharmacology, for the support of research in Effect of Drugs on Glycolysis, has been renewed.

On March 3, Dr. Preston B. Lowrance was selected as a Scholar in Medical Science by the Board of Directors of the John and Mary R. Markle Foundation. Dr. Lowrance was one of sixteen scholars selected from candidates nominated by accredited medical schools in the United States and Canada by regional committees, appointed by the Foundation. As a faculty member of the University of Virginia Medical School, Dr. Lowrance will devote the next five years to teaching and research in cardiovascular disease, in support of which he will receive from the Foundation $25,000, payable at the rate of $5,000 annually for five years. The purpose of the Markle Foundation Program is to strengthen medical schools with more and better teachers and research workers.

On March 16th, as guest speaker on the Postgraduate Program for House Officers, Dr. Paul B. Beeson, Professor of Medicine at Emory University, spoke on the subject, "Fever".

XUM

Dr. W. H. Springall,

Who for the past ten years has been in general practice at Gloucester, left on April 1st for Fredericksburg, Texas, where he will be connected with the Fredericksburg Hospital and Clinic. He is a graduate in medicine from the University of Virginia in 1936.

Dr. Raymond Brown

Has located for general practice at Gloucester where he will take over the practice of Dr. Springall. He is a graduate of the Medical College of Virginia in 1945 and until recently he has been in the Medical Corps of the U. S. Navy.

The Virginia Orthopedic Society

Met in Richmond on March 5 and 6, and was attended by all but two of the orthopedic surgeons in the State. At the first session on Friday afternoon, Dr. Ernest Carpenter of the Tumor Clinic of the Medical College of Virginia spoke on Bone Tumors, and Dr. Josephine Buchanan, of the Department of Physical Medicine at the College, gave a demonstration of paraplegics. The evening session was followed by dinner at the Commonwealth Club after which there was a short business session.

The Saturday morning session was at the Crippled Children's Hospital and was followed by luncheon there. Dr. John R. Cobb, invited guest from the Hospital of Special Surgery of New York City, was the speaker, his subject being Scoliosis—Review of Operative Cases for the Past Two Years. So great was the interest in this subject that he talked for approximately two hours, and the meeting was continued after the luncheon.

Dr. James T. Tucker of Richmond is president of the Society, and Dr. H. H. Wescott of Roanoke secretary.

Accommodations at DeJarnette State Sanatorium.

The following information has been received from Dr. C. Earle Johnson, Jr., Superintendent:

"Due to the evolution of a new operating policy for the DeJarnette State Sanatorium at Staunton, Virginia, it was necessary at one time to curtail admissions. In certain quarters, the impression has persisted that we are not admitting any new cases. We wish to correct this impression and hope that you will see fit to publish this letter so that the practicing physicians of the State will know that accommodations are usually available. The Sanatorium is a State institution. It is the Superintendent's desire that its services to the people not be limited by the erroneous impression that no patients are being accepted."

Postgraduate Course in Electrocardiography.

Emory University School of Medicine, Atlanta, announces a five-day intensive course, May 17-21, presenting a comprehensive survey of electrocardiography. Emphasis will be placed on the clinical interpretation of the electrocardiogram in the light of modern excitation theories and the newer techniques in electrocardiography. The uses and interpretation of multiple chest leads, unipolar leads, the ventricular gradient and variation in normal patterns will be stressed. In addition to the Emory University Faculty, guest speakers who will participate in the program are Dr. George Burch, Tulane University, and Captain Ashton N. Graybiel, MC, U. S. Navy.

Information may be obtained from the Director, Postgraduate Education, Emory University School of Medicine, 36 Butler Street, S. E., Atlanta 3, Ga.

Dr. H. Charles Ballou,

Recently at the Veterans Administration Hospital, Richmond, is locating at White Sulphur Springs, West Virginia, on April the 1st, where he will be associated with Dr. James P. Baker at the Greenbrier Clinic.

Dr. R. D. Garcin, Jr.,

Richmond, announces the removal of his office to 318 North Twenty-Fifth Street, where he will limit his practice to internal medicine.

The American Society for the Study of Sterility

Is holding its Fourth Annual National Session on June 21 and 22, at the Congress Hotel in Chicago. The program will be divided into a special series of panel discussions on male infertility, with papers to be read on female and miscellaneous infertility on the second day.

Additional information may be obtained from the secretary, Dr. John O. Haman, 490 Post Street, San Francisco 2, California.

Professor Karl Lindner,

Chief of the Eye Clinic, Vienna, Austria, delivered the following lectures at the Gill Memorial

Eye, Ear and Throat Hospital, Roanoke, on February 23-25: New Operations; Clinical Bacteriology; Normal Clinic and Pathology of Vitreous; Illustration of Fundus Examination with the Slit Lamp; Slit Lamp Examination of Vitreous; Retinal Detachment, Etiology and Treatment; Etiology and Prophylaxis of Myopia; and Therapeutics and Refraction.

VA's Medical Education Program.

Two faculty members from the Jefferson Medical College of Philadelphia delivered two talks each at the Roanoke Veterans Administration Hospital on March 12.

Arranged by Dr. Lee G. Sewall, Chief of Professional Services, as part of VA's medical education program, the lectures were open to all physicians and were held in the afternoon and evening in the staff room of the hospital.

The speakers and their topics for the opening session were: Dr. Louis H. Clerf, Professor of Bronchoscopy, "Carcinoma of the Larynx", and Dr. Hobart A. Reimann, Professor of Medicine, "Minor Diseases of the Respiratory Tract".

At the night session, Dr. Clerf discussed "Bronchoscopy as a Diagnostic Aid in Bronchopulmonary Disease", and Dr. Reimann spoke on "Pneumonias".

On March 13, the visiting physicians made ward rounds at the 2,000-bed Roanoke hospital with staff members of the medical and surgical services.

Dr. Grover Lee Moore,

Recently connected with the Wytheville (Va.) Hospital, has moved to 510 Commerce Street, Portsmouth, to engage in the private practice of medicine.

The Neuropsychiatric Society of Virginia

Held its winter meeting at the Academy of Medicine, Richmond, on February 25, under the presidency of Dr. Rex Blankinship of Richmond. Guest speakers were: Dr. John C. Whitehorn of Baltimore, speaking on "Psychotherapy" and Dr. George D. Weickhardt of Washington, whose subject was "Recent Developments in the Treatment of Neurosyphilis". Dr. Ebbe C. Hoff of Richmond gave a paper on "The Effects of Dilantin on Anoxia Tolerance" and Dr. P. H. Drewry, also of Richmond, presented a case report. A dinner at the Academy of Medicine followed the scientific session.

Dr. James K. Morrow of Radford is secretary.

Southwestern Virginia Medical Society.

The semi-annual meeting of this Society will be in Bristol, at the General Shelby Hotel, May the 6th, under the presidency of Dr. Douglas D. Vance of that city. There will be afternoon and night programs, the latter featuring a banquet and guest speakers. The secretary is Dr. Andrew F. Giesen, Radford.

American College of Chest Physicians.

The Board of Examiners of the American College of Chest Physicians announces that the next oral and written examinations for Fellowship will be held at Chicago, June 17. Candidates for Fellowship in the College, who would like to take the examinations, should contact the Executive Secretary, American College of Chest Physicians, 500 North Dearborn Street, Chicago 10, Illinois.

The fourteenth annual meeting of the College will be at the Congress Hotel, Chicago June 17-20. An interesting scientific program has been arranged for this meeting, and speakers from several other countries are scheduled to appear.

The National Gastroenterological Association

Will hold its thirteenth scientific session at the Hotel Pennsylvania in New York City on June 7-10, 1948.

In response to popular request the program this year will again for the most part consist of symposia for the first three days and there will be one Panel Discussion, which will be followed by a "question and answer" period.

The fourth day of the session will be devoted to a clinical day at cooperating hospitals in New York City.

Further details and a copy of the program may be obtained by writing to the Secretary, National Gastroenterological Association, 1819 Broadway, New York 23, New York.

OBITUARIES

Dr. Walter Dennis Kendig,

Of Kenbridge, prominent Southside Virginia physician and State Senator from the Ninth District, died suddenly on March the 16th of a heart attack, shortly after he had completed a talk before the Farmville Rotary Club on happenings during the recent session of the General Assembly. Dr. Kendig, a native of Spotsylvania County, was

sixty-seven years of age. He graduated in medicine from the Medical College of Virginia in 1905 and joined the Medical Society of Virginia the same year. He was active in civic as well as professional affairs of his community. He was on the Board of Directors of the Bank of Lunenburg, a former president of the Kenbridge Chamber of Commerce, on the Board of Visitors of the Medical College of Virginia, and a former vice-president and a member of important committees of the Medical Society of Virginia. His wife, a son and daughter survive him.

Dr. Benjamin Adoneram Doggett,

Prominent Norfolk physician, died February 27th. He was fifty-five years of age and a graduate of the Medical College of Virginia in 1915. Dr. Doggett had been a member of the Medical Society of Virginia for twenty-seven years. His wife and a daughter survive him.

Dr. Littleton Davis,

Prominent pediatrician of Roanoke, died January 14th of coronary thrombosis. He was sixty-six years of age and graduated from the former University College of Medicine, Richmond, in 1909. Dr. Davis had practiced in Roanoke for thirty-five years. He was a member of the Medical Society of Virginia. His wife and a daughter survive him.

The following resolutions were unanimously adopted by The Roanoke Academy of Medicine on February 2nd.

WHEREAS: God in His infinite wisdom has seen fit to remove from our midst Dr. Littleton Davis, we have lost a valuable member of our profession.

He was the pioneer pediatrician in Southwest Virginia and as such stimulated interest in better medical care for infants and children. He was influential in establishing clinics for children and he was the first school physician in Roanoke. He held the respect and admiration of the profession and the community.

We hereby express our sincere sympathy to his widow and daughter.

BE IT RESOLVED that the Secretary of The Roanoke Academy of Medicine be instructed to include these resolutions in the minutes of this meeting, a copy be forwarded to the family of Dr. Davis, and a copy be forwarded to the VIRGINIA MEDICAL MONTHLY.

W. L. POWELL
A. D. SHAPIRO
J. M. BISHOP
Committee.

Dr. Ernest Mosby,

For many years a prominent physician of Waynesboro, died at this home in that place on January 29 after a long illness. He was seventy-one years of age and a graduate in medicine from the Medical College of Virginia in 1899. He was for some years a member of the Medical Society of Virginia.

Dr. Thomas V. Williamson,

Well known urologist of Norfolk, died December 29, 1947. He was born near New Market, Va., in January 1883, and graduated in medicine from the University of Virginia in 1908. After a post-graduate course in urology, he located in Norfolk where he had since practiced except for the time he was in service during World War I. He served for a number of years on the Urological Clinic Staffs of the Norfolk Protestant and DePaul Hospitals and took interest in community affairs.

Resolutions on the Death of Doctor Julian Lamar Rawls

The Norfolk County Medical Society records, with sorrow, the passing on January 18th of one of its most outstanding, energetic, and progressive members, Doctor Julian Lamar Rawls; born July 26, 1881, at Carrsville, Isle of Wight County, Virginia; son of Doctor Gavin Rawls and Susan Norfleet Rawls.

He received his education at the Franklin Academy, and at the University of Richmond. He graduated in medicine at the Medical College of Virginia in 1904; and served as interne at Saint Vincent de Paul Hospital, 1904-05. Since then he has been active in various surgical clinics in and around Norfolk; and was largely instrumental in establishing the Tumor Clinic in this section.

He has been honored by being elected President of the Norfolk County Medical Society, The Seaboard Medical Association, The Southeastern Surgical Congress, The Association for the Study of Neoplastic Diseases, and the Medical Society of Virginia. He was an active member of the American Medical Association, American College of Surgeons, and other scientific organizations.

He also won the Shelton Horsley Memorial Award of Merit, presented by the Virginia Division of the American Cancer Society, in recognition of his contribution towards cancer control.

RESOLVED: That in the death of Doctor Rawls, this Society has lost a most valued and progressive friend, and member, and

BE IT FURTHER RESOLVED: That a copy of these resolutions be spread on the minutes of the Society; and a copy be sent to his family; and to the VIRGINIA MEDICAL MONTHLY.

P. ST. L. MONCURE, *Chairman*
W. L. HARRIS
WALTER B. MARTIN